

APPENDIX M

WATER SUPPLY ASSESSMENT



City of San Jose



Coyote Valley Specific Plan

Water Supply Evaluation

March 2007

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EXECUTIVE SUMMARY

The Coyote Valley is currently a rural swath of land between the cities of San José to the north and Morgan Hill to the south. The area is within the sphere of influence of the City of San José and the City has developed the *Coyote Valley Specific Plan* (CVSP) per the *San José General Plan* land use designations. The Specific Plan calls for a total of at least 26,400 residential units and 55,000 new jobs to be developed in Coyote Valley.



California Senate Bill 610 (SB610) provisions require the provision of detailed information regarding water availability to city and county decision-makers prior to approval of specified large-development projects. Per SB610 requirements, the City has requested every potential water retailer for the CVSP prepare a Water Supply Assessment (WSA). This Water Supply Evaluation of Coyote Valley has been prepared by the City of San José to:

- Establish the total water supply and demand of the CVSP;
- Evaluate the submitted retailer WSA Reports for their compliance with SB610 requirements, and their understanding of and ability to meet the water supply needs of the CVSP;
- Determine whether sufficient water will be available for the CVSP based upon the available record, including additional information as necessary; and
- Form the basis for environmental documentation on the subject.

Water Supply Assessment (WSA) Reports were submitted to the City of San José by the following Water Retailers:

- The City of San José Municipal Water System (June 2006)
- The Great Oaks Water Company (July 21, 2006)
- The San Jose Water Company (April 2006)

The Santa Clara Valley Water District (District), which manages wholesale water deliveries in Santa Clara County, has included CVSP water demands in its updated *2005 Urban Water Management Plan* (UWMP), utilizing a forecasted demand for CVSP of 18,500 acre-feet/year (afy). This value has been supported by City consultants and retailer WSA reports, and is considered the finalized CVSP projected demand.

The City of San José has worked closely with the District in the preparation of this Water Supply Evaluation since the CVSP sits above the Coyote Groundwater Sub-basin, which is managed by the District. The District has concluded that up to 8,000 acre-feet per year (afy) may be withdrawn from the groundwater sub-basin on a sustainable basis during multiple year drought conditions. There is therefore a predicted water supply deficit of 10,500 afy at Specific Plan build-out.

The District has also determined that an additional 6,000 acre-feet per year of groundwater recharge into the Coyote Sub-basin via new recharge facilities is required to safely increase groundwater withdrawal from the Sub-basin to the maximum sustainable long-term amount, which is 13,000 afy regardless of hydrologic conditions (e.g. drought).

Each of the listed water retailers has prepared a SB610 WSA that concludes the retailer currently has, or can feasibly access, water in sufficient amounts to supply CVSP demands in normal, single dry, and multiple dry year scenarios.

Their assessments are based in large part on the District's 2005 Urban Water Management Plan (UWMP), which includes CVSP water demands and concludes that with water conservation savings and additional investments, current District supplies are adequate to meet near-future demand – to 2020 – in normal-year and dry-year scenarios. Beyond 2020, potential additional supplies have been defined generally in both the UWMP and the District's 2003 *Integrated Water Resources Plan Study* (IWRP). These supply sources include: maximized water conservation, advanced treatment of recycled water for groundwater recharge, development of desalination, expanded water supply banking and a new 100,000 acre-foot reservoir. Any combination of these could reduce potential water shortages through 2030 to negligible levels.

Evaluated retailer alternatives for the delivery of new water supplies to Coyote Valley include:

- Delivery of supplemental groundwater from greater San Jose;
- Direct use of treated water from the Santa Teresa Water Treatment Plant;
- Raw water from the Cross Valley Pipeline via a new turn-out;
- Recycled water; and
- Decreased demand through increased water conservation savings.

After evaluating retailer assessments, District policies with respect to a preference for local water supplies, and the stated goal of the CVSP as a model project with innovative solutions; the City of San José recommends that the use of recycled water be maximized to the extent possible when meeting non-potable water demands and supplemental groundwater recharge requirements.

Recycled water has the advantage of being almost entirely unaffected by drought, and the use of recycled water has been identified by the District as a key component of the overall long term County-wide water supply plan.¹ There are four wastewater treatment providers in the County which also provide recycled water: the San José/Santa Clara Water Pollution Control Plant (SJ/SC WPCP), South County Regional Wastewater Authority (SCRWA), Sunnyvale Water Pollution Control Plant (SWPCP) and the Palo Alto Regional Water Quality Control Plant (RWQCP). Non-potable CVSP demands and/or indirect potable groundwater recharge demands can be met using appropriately treated wastewater from the SJ/SC WPCP and/or the SCRWA. It must be noted that the District will require any recycled water that has the potential to infiltrate into the sensitive Coyote Groundwater Sub-basin undergo full advanced treatment, consisting of reverse-osmosis membrane filtration and ultraviolet light disinfection.

(In addition to the treatment requirements set by the District, the California Department of Health Services has jurisdiction over groundwater reuse requirements. Although draft regulations for groundwater recharge reuse currently exist, actual requirements are set on an individual case by case basis. Further study will be needed to determine if these additional requirements for groundwater reuse use can be met and Health Department approval obtained. In the event that all of the projected groundwater recharge requirements in Coyote Valley cannot be met using recycled water or it is not feasible to do so, sufficient alternatives for water supply exist as described herein, including recycled recharge in the Santa Clara Valley Sub-basin.)

Maximizing the use of recycled water will require additional distribution and storage facilities, groundwater recharge facilities and additional treatment. If the use of recycled water is maximized, the amount of potable water that must be delivered to Coyote Valley for build-out demand can be reduced to 1,200 acre-feet per year. This water supply can be obtained from the greater San Jose area. Aggressive water conservation could also help minimize the need for supplemental potable water.

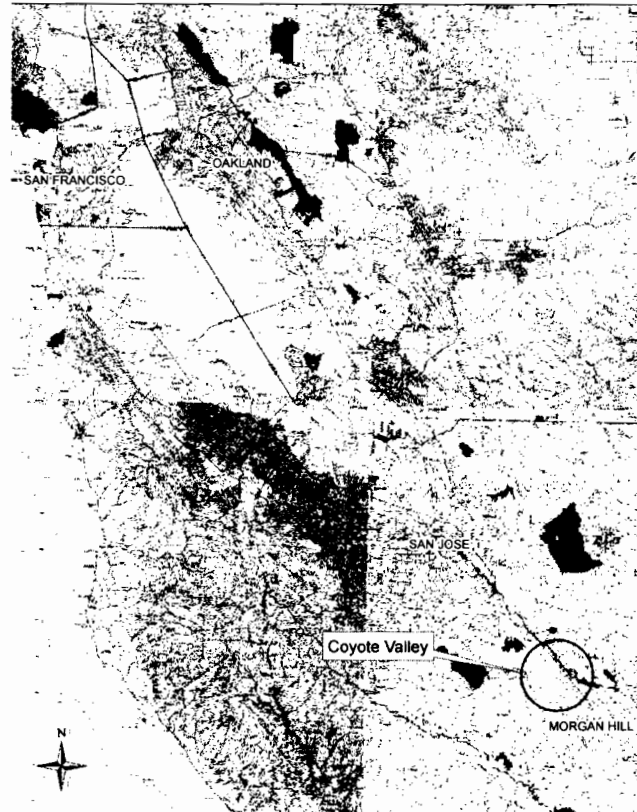
In summary, based on available information including Santa Clara Valley Water District planning documents and retailer Water Supply Assessments, there is enough evidence to support a finding that sufficient water supplies will be available to support CVSP build-out concurrent with 2030 County-wide demand.

¹ IWRP, 1999, I-1

PROJECT BACKGROUND

The *Coyote Valley Specific Plan* (CVSP) project area (Plan Area) comprises approximately 7,000 acres of primarily undeveloped flat land located within the Sphere of Influence of the City of San José, 12 miles south of downtown and immediately north of the City of Morgan Hill (Figure 1). Of the 7,000 total acres, the South Coyote Valley Greenbelt makes up approximately 3,600 acres, and has been included in the CVSP for the purpose of creating a Greenbelt Strategy. The 3,400-acre area proposed for development is referred to as the Development Area and is comprised of the North Coyote Campus Industrial Area and Coyote Valley Urban Reserve Area.

Figure 1: Coyote Valley Location



The City's *San José 2020 General Plan* currently designates Coyote Valley in terms of three distinct Land Use designations: the *North Coyote Campus Industrial* area, the *Coyote Valley Urban Reserve*, and the *Coyote Valley Greenbelt*, as described below and shown in Figure 2.

1. The northern portion of the valley (approximately 1,444 acres) is designated as the *North Coyote Campus Industrial* area;
2. The central portion of the valley (approximately 2,072 acres) is currently designated as the *Coyote Valley Urban Reserve* (also known as mid-Coyote Valley);
3. The southern portion of the valley is designated as the *Coyote Valley Greenbelt* (approximately 3,621 acres), which is considered to be a permanent, non-urban buffer between San José and Morgan Hill.

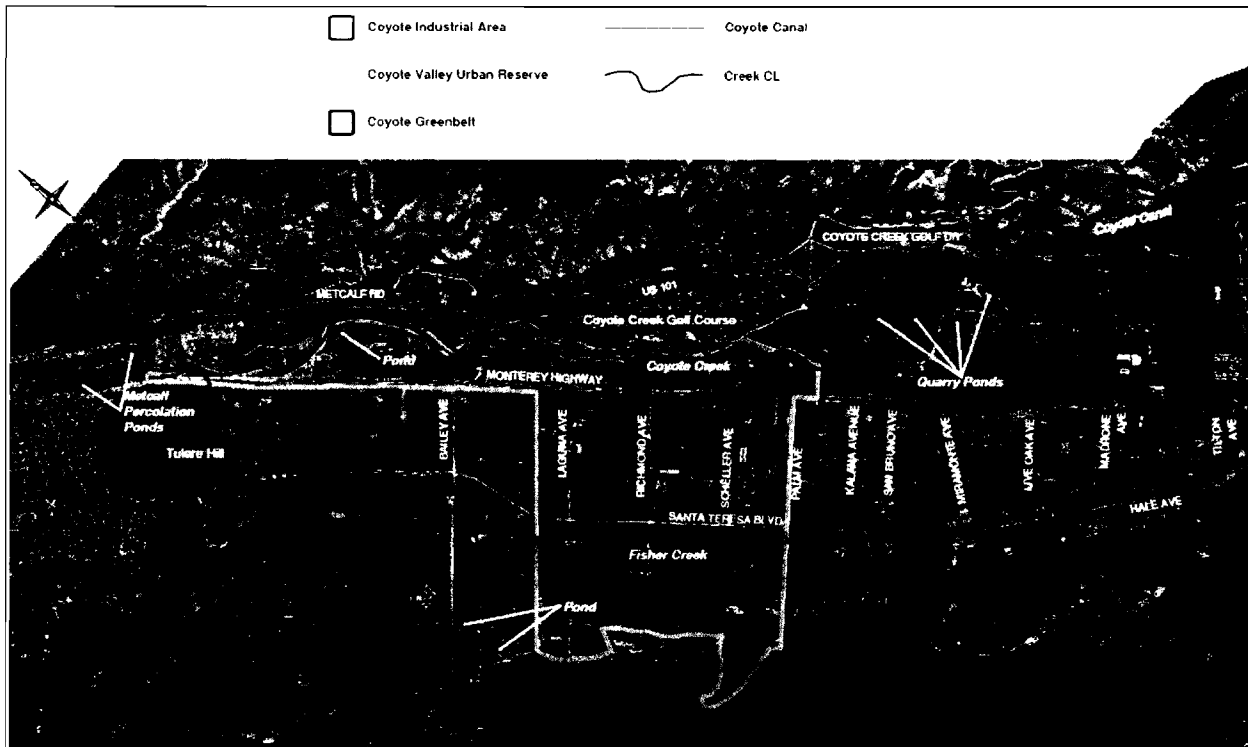


Figure 2: Coyote Valley Land Use Designations

The Metcalf Energy Center (MEC) is currently operating in the North Coyote Campus Industrial area. MEC recycled water needs are not included in this analysis, as they have been addressed by previous City and District agreements;² however, the increase in potable water demand by MEC as a result of the CVSP is addressed in this water supply evaluation.

Senate Bill 610 Applicability

Senate Bill 610 (SB610) requires preparation of a water supply assessment for all projects that meet certain criteria to assist local governments in making decisions regarding proposed land development projects. Those criteria (codified as California Water Code 10912) and the means by which the CVSP meets them are presented in Table 1.

SB 610 does apply to the CVSP Development and a WSA is required. Prior to the three WSAs submitted in 2006, no formal WSA have been prepared for this project or precursors to the project such as the Coyote Valley Research Park, which was entitled prior to the passage of SB610.

² Santa Clara Valley District Urban Water Management Plan (2005), p. 46.

Table 1:
Coyote Valley Specific Plan and Senate Bill 610 Water Supply Assessment Criteria

Proposed Land Use	Criteria	CVSP	Meets Criteria?
Residential development	More than 500 dwelling units	26,400 units	Yes
Shopping center or business establishment	More than 1,000 persons employed or more than 500,000 sq ft of floor space		Yes
Industrial, manufacturing, processing plant; or industrial park	More than 1,000 persons housed; more than 40 acres occupied; or more than 650,000 sq ft of floor area	Combined total of 55,000 jobs	Yes
Commercial office building	More than 1,000 persons employed or more than 250,000 sq ft of floor space		Yes
Hotel or motel	More than 500 rooms	Not Specified	Not applicable

Water Supply Assessment Roles and Responsibilities

The City of San José is the lead agency preparing the Environmental Impact Report for the CVSP. Water retailers have not been selected to serve the project area, nor will the City select water retailers to serve the project area; but the City of San José Municipal Water Department and the Great Oaks Water Company have facilities in the area; and San Jose Water Company has expressed an interest in supplying water to Coyote Valley, having purchased land for a potential supply well near Metcalf Road. Generally these retailers would be solely responsible for the preparation of Water Supply Assessments within their service areas.

Since service areas are not defined within the CVSP area, the City of San José, in accordance with SB 610, requested that each retailer prepare an SB 610 Water Supply Assessment for the entirety of the Plan Area. Copies of each Water Supply Assessment are included as Appendices A through C.

Since water retailer selection may occur after the CEQA process is complete, the City of San José is preparing this Water Supply Evaluation to summarize projected CVSP demands, evaluate the submitted Water Supply Assessments for their relative impacts; and based on these documents and the entire record available, make an independent conclusion regarding the availability of water for the CVSP.

The Santa Clara Valley Water District (District or SCVWD) has collaborated with the City in the preparation of this Water Supply Assessment. The SCVWD has a number of roles in the project:

- The SCVWD is the primary wholesale water supplier in the County.
- The SCVWD manages the Coyote Valley Groundwater Sub-basin.
- The SCVWD will act as a responsible agency under the California Environmental Quality Act (CEQA) for certain aspects of the CVSP project including water supply.
- The City refers proposed private and public development projects to the SCVWD for their review and comment on water supply issues.

The SCVWD will participate in selecting preferred alternatives for water supply so that the selection does not have a deleterious effect on water supply reliability in other parts of the County and is consistent with long-term planning goals. As a water wholesaler, the District will operate and maintain recharge facilities, diversions, turnouts, and pipelines to recharge facilities. For treated water, the District will have the responsibility for the pipelines up to retailer turnouts. Additionally, the District is the recycled water wholesaler for the CVSP area, and so might also deliver recycled water to CVSP from the South Bay Water Recycling Program and/or from South County Regional Wastewater Authority, if that water is used as a supply source.

Document Organization

After presenting estimated water demands for CVSP build-out, this Water Supply Evaluation examines existing potable and non-potable water supplies available in Coyote Valley. As discussed herein, local water supplies (that is, supplies already used within Coyote Valley) are insufficient to meet projected build-out demands. Each water retailer proposes various alternatives to augment local supplies to meet demand, and the alternatives are evaluated relative to feasibility.

The Santa Clara Valley Water District plays an important role as a water wholesaler to each retailer, and an important role managing water resources within Coyote Valley, so the District's concerns and issues relative to water supply augmentation strategies are highlighted. Finally, based on the evidentiary record furnished by the retailers and information obtained from the District, water supply alternatives are evaluated in light of the guiding principals set forth by the City of San Jose for the Coyote Valley Specific Plan.

PROJECTED WATER DEMANDS FOR CVSP

The District 2005 UWMP estimates total build-out demand of Coyote Valley including CVSP as 18,500 acre-feet/year (afy). This estimate is within one percent of current estimated Coyote Valley build-out demand (18,700 afy) based on the land use plan incorporated within the CEQA documents prepared for the City of San José.³ The build-out water demand estimated by the various Retailers (excluding MEC existing demand) ranges from 13,700 afy⁴ to 20,400 afy⁵. For consistency, this WSE utilizes the District UWMP total build-out demand estimate of 18,500 acre-feet per year. Disaggregated water use estimates for build-out within Coyote Valley are summarized by Table 2. A detailed estimate of water demand, including unit demand factors, may be found in Appendix A.

Table 2: Coyote Valley Water Usage Demand, In Acre-Feet per Year (AFY)

Area	Existing	Forecasted Build-Out	Demand Increase
Coyote Valley Urban Reserve & North Campus Industrial Area Residential and Employment Demands	2,800	11,900	9,100
Outside of Plan Area (Morgan Hill Sphere of Influence)	2,000	2,000	---
Coyote Valley Greenbelt	2,100	4,000	1,900
Metcalf Energy Center Potable Demand	400	600	200
TOTAL	7,300	18,500	11,200

Only the potable MEC demand is included in this water supply assessment as non-potable needs have been addressed by the Silver Creek Pipeline Agreement,⁶ described in more detail in the “Existing Water Supplies” section of this report.

Table 3 presents anticipated Coyote Valley water demands in five year increments to 2030, assuming complete build-out by that time to be consistent with District water supply planning documents.⁷ In actuality, Coyote Valley build-out is expected to spread over a longer period of time that is market driven.

³ HMH, “Coyote Valley Specific Plan Water Supply Analysis,” January 2006.

⁴ San José Municipal WSA, Table 14

⁵ San José Water Company WSA, p. 4

⁶ UWMP, p. 46.

⁷ UWMP Table 6-9, adjusted to include City data regarding existing and 2010 demand.

Table 3: Coyote Valley Projected Demand in Five-Year Increments

	2005	2010	2015	2020	2025	2030
Annual Demand (afy)	7,300	7,300	11,200	13,700	16,200	18,500

Water demands have been divided into potable and non-potable categories (Table 4) since infrastructure exists to deliver recycled (i.e. non-potable) water to the area.

Table 4: Coyote Valley Potable and Non-Potable Water Demands

	Total Water Demand (afy)	Non-Potable Water Demand (afy)	Potable Water Demand (afy)
Coyote Valley Urban Reserve & North Campus Industrial Area Residential and Employment Demands	11,900	2,000	9,900
Outside of Plan Area (Morgan Hill Sphere of Influence)	2,000	400	1,600
Coyote Valley Greenbelt	4,000	1,900	2,100
Metcalf Energy Center *	600	0	600
TOTAL	18,500	4,300	14,200

* Non-Potable water demands at the Metcalf Energy Center (up to 4,000 afy) are already supplied

It must be noted that although the recycled water currently available in Coyote Valley, and used to meet Metcalf Energy Center demands, meets all State Title 22 recycled water requirements, the Santa Clara Valley Water District Board of Directors has concluded that any recycled water used in the Plan Area which could percolate into the groundwater sub-basin (e.g. groundwater recharge, landscaping, etc.) should be fully advanced treated using reverse osmosis and ultraviolet light disinfection to protect groundwater quality within Coyote Valley. In addition, the California Department of Health Services establishes project specific requirements for groundwater recharge with recycled water.⁸ These requirements address treatment, residence times, organic content, monitoring, and other factors to protect public health. Further study will be needed to determine if these additional requirements can be met.

Existing groundwater recharge of recycled water in California takes place in Orange County and Los Angeles County, so this is not an unprecedented source of water supply. Nearly one-quarter of anticipated CVSP build-out demand (excluding MEC) could be met with non-potable water.

⁸ The Purple Book, p. 61

EXISTING WATER SUPPLIES

This section of the report first describes general conditions in Coyote Valley before identifying existing local (in-valley) and imported (out of valley) water supplies, and proposed alternatives for delivering existing imported water to the boundaries of the Plan Area. For the purposes of this report, an “existing” water supply is defined as a supply that is currently being used in some amount within the Plan Area, and the increased use of said supply by CVSP would have no adverse impact on any existing user inside or outside of the CVSP. Conversely a “new” water supply is one that although currently available within the County as managed by the District, is not currently in use within the Plan Area, and the use of said supply within the CVSP might impact other existing or future users.

Impacts of importing water to augment local water availability are discussed herein. However, the distribution of water within Plan Area boundaries to individual users will be addressed in subsequent detailed planning as the CVSP process moves forward.

Existing potable water demands in Coyote Valley are primarily supplied by pumping local groundwater. SB610 requires the inclusion of data that document available groundwater supplies if those supplies will be used for proposed subdivisions subject to SB221, which will be the case in Coyote Valley once development begins. Following a brief introduction of Coyote Valley’s environmental setting as it relates to groundwater, existing groundwater conditions are described to provide the proper context for an understanding of future water delivery infrastructure options. A more in-depth description of the Coyote Valley groundwater sub-basin, pursuant to SB610 requirements, is included as Appendix D.

Relevant Existing Conditions in Coyote Valley

Figure 3 shows topographic features that characterize Santa Clara County. Coyote Valley is located at the center of the county, and is the smallest of three valleys between the Diablo Range to the east, Santa Cruz Mountains to the west, San Francisco Bay to the north, and the Pajaro River to the south. The Plan Area sits atop broad alluvial fans that were formed as streams emerged from the eastern Diablo Range onto the Santa Clara Valley floor and deposited unconsolidated materials as their slopes flattened. Streambed deposits and alluvial fans generally slope toward San Francisco Bay to the northwest. The slight ridge at Cochrane Road divides waters (both surface and ground) that flow to the north from those that flow to the south through Morgan Hill and Gilroy to the Pajaro River and Monterey Bay.



Figure 3: Santa Clara County Topography (from SCVWD, 2000)

Geologists believe that an ancient Coyote Creek once drained to the Pajaro River near the mouth of present-day Carnadero Creek. Figure 4 shows an oblique view of Coyote Valley itself, projected from above Tulare Hill, looking south toward Morgan Hill with the Coyote Narrows in the left foreground. The defining feature of the Coyote Valley watershed viewed in the left foreground on Figure 4 is the Coyote Creek Narrows, a geologic feature located where the Diablo Range and Santa Cruz Mountains converge to restrict the flow of water to the north toward San Francisco Bay. At the narrows, Coyote Creek and its eastern tributaries drain about 205 square miles of upland area beginning at the Diablo Range ridge that forms the border with Stanislaus County. Most of Coyote Creek's watershed to the Narrows is located in rugged, sparsely populated areas.

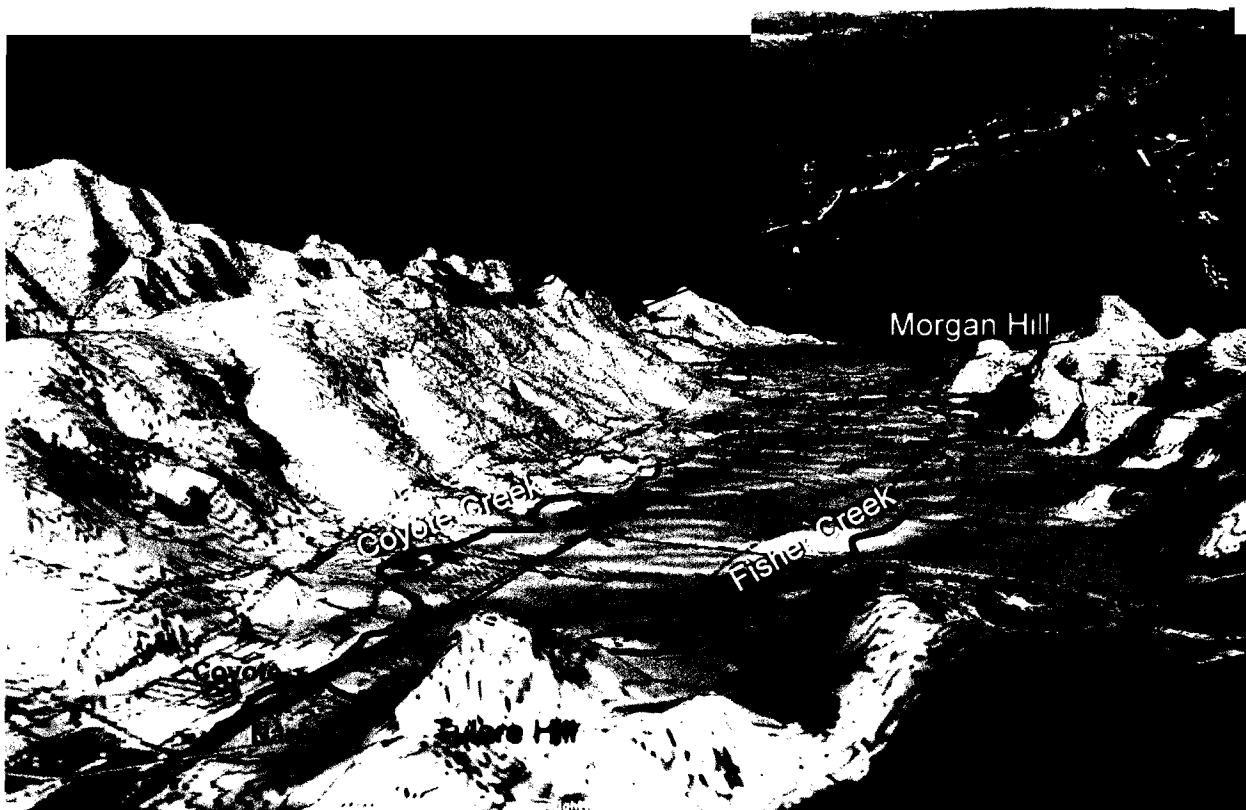


Figure 4: Oblique View of Coyote Valley Looking South from Tulare Hill (Inset: Anderson Reservoir)

Two water supply reservoirs owned and operated by the Santa Clara Valley Water District – Anderson Reservoir and Coyote Reservoir, which have a combined storage capacity of approximately 115,000 acre-feet – provide the vast majority of current groundwater recharge within Coyote Valley in addition to a significant portion of water supply to the County. Appendix D describes the use of groundwater within Coyote Valley in more detail.

Coyote Valley Climate

The Plan Area's climate is moderate with an average summertime high temperature of 82°F and an average winter low temperature of 38°F at Morgan Hill. Mean annual precipitation in the Coyote Creek watershed to the Narrows is about 24 inches, with 21 inches on the valley floor. Annual evapotranspiration over the watershed is approximately 49 inches, thereby resulting in an annual moisture deficit.⁹

Roughly 90 percent of the region's annual precipitation falls from November through March. Year-to-year rainfall varies greatly, and droughts of various durations are common. Over the period of record of 129 years for San José rainfall, Santa Clara County has had seven major droughts, and several relatively wet periods. The driest and wettest two-year cases over the period of record have been 1976-1977 and 1982-1983 respectively. Precipitation has generally been above average in the County since the 1990's. Rainfall is the predominant form of precipitation in the watershed, although the higher elevations of the Diablo Range occasionally receive measurable snowfall. Snowmelt, however, is not considered to be a hydrologic process that significantly affects runoff within the watershed.

Existing Local Water Supplies for the Coyote Valley Specific Plan

Appendices D and E describe groundwater conditions in the Coyote Valley Groundwater Sub-basin, from which all local potable water supplies are currently extracted. This subsection of the Water Supply Evaluation provides a summary of those two appendices in the context of existing and potential local groundwater availability, and non-potable water supplies currently available to be imported to Coyote Valley from the South Bay Water Recycling Program.

Potable Water Supply: Coyote Valley Groundwater Sub-basin

As described previously, the climate in Santa Clara County is semi-arid, with periods of low rainfall and drought alternating with average, above-average and wet years. Groundwater conditions in Coyote Valley are very sensitive to seasonal precipitation. Hence groundwater characteristics during any single year are not necessarily indicative of conditions in previous or subsequent years, and a longer period of record is needed to assess "existing conditions". A more in-depth discussion of the CVGSB is included as Appendix D. It is vital that this groundwater resource be protected from contamination in compliance with all local, state, and federal regulations and policies.

The District's Coyote Valley water supply availability analysis (Appendix E) concludes that with current District operations, 8,000 acre-feet per year (afy) of groundwater from the Coyote Valley groundwater basin is available to the CVSP annually, even in a multiple dry year planning scenario.

⁹ Source: California Irrigation Management Information System (DWR) data.

Non-Potable Water Supply: Silver Creek Pipeline

The existing South Bay Water Recycling (SBWR) system was recently expanded with the construction of the Silver Creek Pipeline Extension to deliver water to the Metcalf Energy Center (MEC). The MEC, which is within the CVSP Plan Area, currently uses about 4,000 afy of recycled water via the Silver Creek Pipeline. As such, although this existing use has been excluded from forecasted CVSP water demands, recycled water is considered an existing water source within the Plan Area. The Silver Creek Pipeline that delivers water to the MEC has an additional 5 million gallons per day (mgd) capacity which is secured for the District's future use via an agreement between the District and the SBWR program.

This capacity could provide about 5,600 acre-feet annually, although facilities are needed in Coyote Valley to provide operational storage for seasonal and daily demand peaking and the District will require advanced treatment before any of this water can be used in such a manner as to potentially infiltrate into the groundwater basin. While the Silver Creek pipeline currently extends to the boundary of the Plan Area, and the SBWR currently has the capacity to provide the full 5,600 afy, this not considered to be an existing water source since new treatment and facilities are needed to utilize the supply.

The CVSP land use plan includes construction of a new multi-purpose lake feature which is a feasible storage option to address this onsite storage need. To deliver water from the existing Silver Creek Pipeline terminus to Coyote Lake would require the construction of a pipeline approximately 8,000 feet long.

As stated, the District will require any recycled water in Coyote Valley that could infiltrate into the sensitive Coyote Valley Groundwater Sub-basin to undergo fully advanced treatment. While the lake will be lined with an impermeable barrier to prevent infiltration; all SBWR supplies utilized for recharge or irrigation within the Plan Area would undergo reverse osmosis and UV disinfection. This process results in roughly a 30 percent loss in water supply.¹⁰

CVSP Water Supply Deficit

Existing groundwater supplies (8,000 afy) can meet 43 percent of the projected ultimate water demand in Coyote Valley during a multiple year drought. The unmet potable water demands at build-out total 6,200 afy and estimated direct non-potable demands total 4,300 afy. (The total projected annual water supply deficit during a multiple dry year scenario is 10,500 acre-feet per year.) With advanced treatment and Santa Clara Valley Water District approval, over 90 percent of the identified direct non-potable water use in CVSP at build-out could be met using recycled water currently available from the Silver Creek Pipeline, beyond the water presently furnished to Metcalf Energy Center.

¹⁰ Tracy Hemmeter, SCVWD, personal communication, November 17, 2006.

AUGMENTING COYOTE VALLEY WATER SUPPLIES

The District has determined that the sustainable extraction of water from the Coyote Valley Groundwater Basin over the long term can be maximized if recharge to the basin is increased by 6,000 afy (Appendix E). Some combination of increased Anderson Reservoir releases, percolation through Fisher Creek and/or construction of new recharge basins in the Greenbelt are potential options for delivering this supplemental supply to the Coyote Valley Groundwater Sub-basin. Numerical modeling demonstrates that a 6,000 afy recharge augmentation results in a net increase in sustainable extraction of 5,000 afy irrespective of general hydrologic conditions such as drought. (Further increases in recharge do not allow additional groundwater extractions without commensurate decreases in groundwater storage and pumping levels.) Adding this increase in extraction to the 8,000 afy sustainable existing supply increases the allowable multi-year drought extraction to 13,000 afy, which would then meet 92 percent of projected potable water demand.

Augmentation Alternatives Contained in Retailer Water Supply Assessments

Water Supply Assessments (WSA) for the CVSP Project have been written by the City of San José Municipal Water System (Muni), the Great Oaks Water Company (Great Oaks), and the San Jose Water Company (SJWC). This section of the WSE is intended to give an overview of the water sources and conclusions found in each of these WSA reports and how their conclusions might affect the water supply evaluation contained herein. These reports will be utilized by the City in making a final determination of the water supply availability for the CVSP, in conjunction with other information in the record. Although concerns with the reliability and/or sustainability of the identified water sources are discussed, this Water Supply Evaluation is in no way intended to be used as a tool by anyone for the selection of individual retailers to serve any portion of the project.

City of San José Municipal Water System

The City of San José Municipal Water System (Muni) WSA relies on an earlier referenced HMH Engineering report to calculate water demands. These values are adjusted based on Muni data to estimate a total CVSP build out demand of 18,711 afy (excluding existing MEC demand of 4,000 afy). This demand is reduced to 13,684 afy through water use coefficients adjusted to reflect greater conservation. It appears from the Muni WSA that demand values fluctuate within this range depending on the drought scenario.

Muni also relies heavily on the District Water Supply Availability Analysis, presenting various scenarios to meet the CVSP water demands which include among them groundwater from Coyote Valley Sub-basin, treated water from Santa Teresa ('District Imported Water'), recycled water and water conservation. Table 5 presents the range of the proposed annual water volumes for these various scenarios.

Table 5: San Jose Municipal's Proposed CVSP Water Supply Strategy

Source of Water	Acre-feet per year
Local Groundwater with Recharge	8,000 - 13,000
Recycled Water*	8,120
District Imported Water	5,131 - 9,520
Total	17,261 - 26,650

* Excluding MEC Existing Recycled Water Use

Muni identifies the need for increased groundwater recharge to maximize withdrawal from the Coyote Valley Sub-basin as described, but the indirect demand (i.e. the lost 1,000 afy) is not specifically included in CVSP water needs. The Muni WSA concludes that any of its three scenarios, all of which include capitol improvement projects, will meet water demand in normal, single year, and multi-year drought scenarios. The third scenario depends on water conservation to meet demands in single and multi-year drought scenarios.

The San José Municipal Water System is owned and operated by the City of San José. It is managed as an enterprise and is entirely self-supporting. As a municipal system, the City of San José is not regulated by the CPUC, but follows criteria established by the California Administrative Code. Muni is currently providing water service within Coyote Valley north of Bailey Road. There are no physical ties between this system and Muni's Evergreen or Edenvale systems, both located to the north of Silicon Valley Boulevard.

Great Oaks Water Company

The Great Oaks Water Company (Great Oaks) relies heavily on its own 2005 Urban Water Management Plan (included in the Great Oaks WSA within Appendix B). The CVSP water demand has been incorporated into Great Oaks UWMP,¹¹ although the demand is not disaggregated in either their WSA Report or the UWMP. Great Oaks proposes to meet all current and future demands throughout their service area with groundwater from the Santa Teresa and Coyote Groundwater Sub-basins. The Great Oaks WSA does not discuss the District's identified need for additional recharge basins within Coyote Valley, but relative pumping amounts from the two groundwater basins are not quantified, so it is possible that this need could be circumvented by limiting total annual Coyote Valley Groundwater Sub-basin extractions to 8,000 afy, taking

¹¹ Great Oaks WSA Report, p. 6

the remainder (10,500 afy) from the Santa Clara Sub-basin. Great Oaks asserts that the District is required to recharge both Sub-basins and maintain groundwater levels at performance levels.¹² Furthermore, the District has the authority to regulate groundwater extractions in the event of land subsidence and other “permanently injurious consequence of groundwater overdraft in periods of drought.”¹³

Great Oaks does not propose to meet any of the CVSP water demand via recycled water. Although the Great Oaks UWMP does not include single and multi-year supply and demand scenarios for the build out (i.e. year 2030) conditions, it can be inferred from the District’s UWMP (discussed subsequently) that there will be sufficient supply from various sources to meet demand during normal, single, and multi-year drought conditions for both current and projected (2030) demands.

Great Oaks Water Company is a privately owned utility operating under rules established by the California Public Utilities Commission (CPUC). They are certificated by the CPUC to serve water within the Specific Plan Area and have established water supply wells and distribution mains within their Coyote Valley service area that are interconnected to their water supply, storage and distribution system in Santa Teresa. Great Oaks’ certificated service area extends south to Palm Avenue between Monterey Highway and (loosely) Calero Reservoir. The generalized service area is shown on Figure 5, but this figure should not be used to establish actual certificated service areas by parcel.

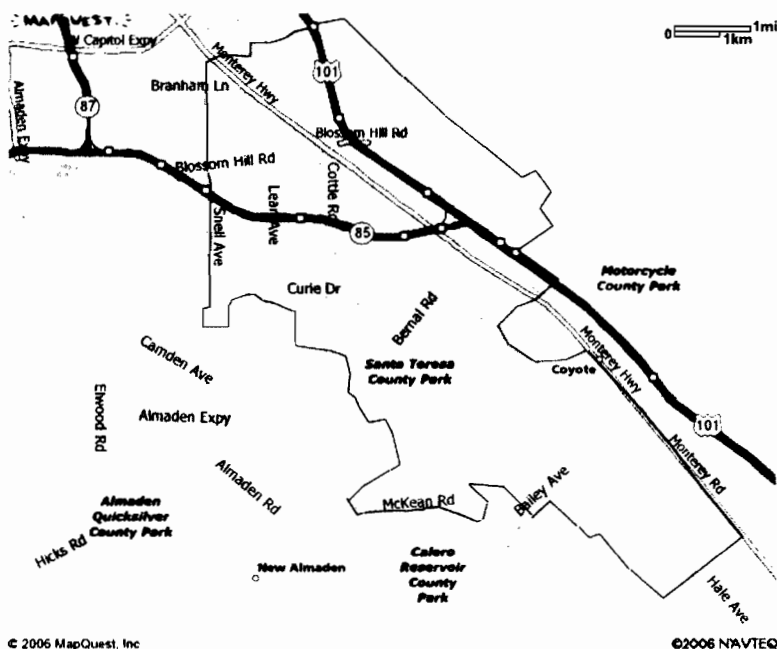


Figure 5: Great Oaks Water Company Service Area

¹² Great Oaks WSA Report, p.17

¹³ SCVWD Ordinance No. 89-1

San José Water Company

The San Jose Water Company (SJWC) WSA Report relies in part on the District Water Supply Availability Analysis (Appendix E). As such, they recognize the need for additional recharge into the Coyote Valley Groundwater Sub-basin, however neither this need nor its source is specifically included in the water projections.

The SJWC estimates the CVSP build-out anticipated demand to be 20,400 afy, and proposes to meet this demand via groundwater (six new wells in the Coyote Groundwater Sub-basin), recycled water (only MEC demand appears to have been included), water conservation, Santa Teresa water via a water main extension, and tapping into the Cross Valley Pipeline for recharge water. Table 6 presents the proposed annual water volumes from these sources.

Table 6: SJWC's Proposed CVSP Water Supply

Source of Water	Acre-feet per year
Groundwater with Recharge	6,000 - 13,000
Recycled Water	4,000
Santa Teresa Water via SJWC System	3,400 - 10,400
Total	20,400

The SJWC concludes that they are able to provide sufficient water to meet all of CVSP demands in normal, single year, and multi-year drought conditions, although the conclusion for single and multi-year drought scenarios is dependant on voluntary and involuntary water conservation during drought scenarios. As further described in Appendix C, San Jose Water Company has a diversified portfolio of water supply sources included treated water bought from the SCVWD (55% of supply), local groundwater from the Santa Clara Sub-basin (36%) and local surface water (9%).

San Jose Water Company is a privately owned utility operating under rules established by the California Public Utilities Commission (CPUC). They are not certificated by the CPUC to serve water within the Specific Plan Area (Figure 6).

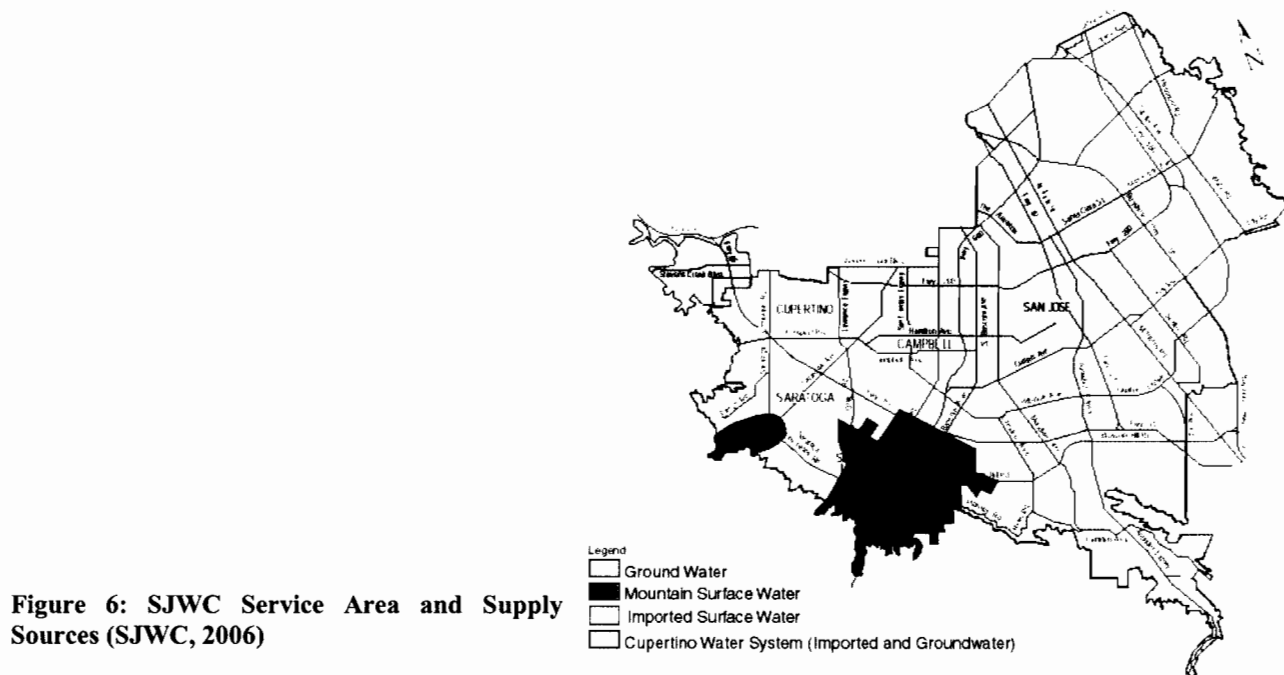


Figure 6: SJWC Service Area and Supply Sources (SJWC, 2006)

SCVWD AS A WATER WHOLESALER

Santa Clara Valley Water District (SCVWD or District) wholesales water to each of the three identified retailers. In 2005 the District updated its Urban Water Management Plan (UWMP) to “meet the requirements of the California Urban Water Management Planning Act and to present important information on water supply, water usage, recycled water and water use efficiency programs in Santa Clara County.”¹⁴ The UWMP also details anticipated water use and sustainable supplies in the County for the next 25 years. Since the 2005 UWMP specifically includes the CVSP through build-out in its forecasted water demands, this WSE relies heavily on the Urban Water Management Plan. The UWMP makes explicit assumptions in its forecasting of future water demands and supplies. These assumptions are summarized in the UWMP and are quoted here:¹⁵

“In 2002, the District developed its first stewardship plan for the Coyote Valley Watershed. In 2005, three additional plans were developed for Lower Peninsula, West Valley, and Guadalupe watershed management areas. Sponsored in part by the CALFED Bay-Delta Watershed Program, the later plans describe shared water resources interests and provide tools for better management of complex water resource issues. This includes promoting coordination among flood protection, water supply, water quality, stream restoration, and parks, trails, and open space projects. The stewardship plans translate the District’s policies into specific goals and objectives at the watershed level. The integration of the IWRP process with watershed stewardship planning allows water supply planning to be economically, socially, and ecologically sound and yet responsive to changing and uncertain future conditions.

“As part of the water demand update and preparation of UWMP 2005, the [Integrated Water Resources Plan] IWRP framework and portfolio options were reviewed. IWRP Study 2003 (Phase II - 2011 to 2020) outlined several possible response strategies to address various likely scenarios to meet future demand through the year 2020. Six different scenarios were analyzed in the IWRP Study 2003 process, and the response strategies that would be required to achieve a high level of reliability for each scenario to the year 2020 were presented. Based upon analyses performed for UWMP 2005 and re-evaluation of risk scenarios and assumptions, it appears that some of these strategies could be deferred. The direction that the District will pursue will reflect responses to how risks actually unfold over the next five years.

“2021 to 2040 (Phase III): Because the impacts of risks 15 to 35 years out are uncertain, and because actions and decisions in the near term can significantly affect the future water supply outlook, IWRP Study 2003 does not present specific recommendations for investments beyond the year 2020. Rather, it presents general descriptions of the types of investments that may be needed to manage these risks in the more distant future. Throughout the planning horizon, other critical steps to ensure long-term water supply reliability include the following:

- Monitoring for risks (including climate change), new opportunities, and technology improvements

¹⁴ Santa Clara Valley Water District UWMP 2005.

¹⁵ UWMP, pp 14-16.

- Investigating desalination feasibility and recycled water acceptance and marketability
- Exploring potential water management and water quality improvement alternatives
- Developing and maintaining regional and statewide partnerships
- Maximizing support for new investments through statewide and regional partnerships

“The District also periodically updates water demands. Changes in demand projections, in addition to other risks, affect water supply investment decision making under the IWRP Study 2003 planning framework.

“Long-Term Water Supply Planning Assumptions

Given the uncertainty associated with planning for future water supply needs, various assumptions regarding the future have been developed by District staff in order to formulate a water supply plan. The following section documents the water supply planning assumptions used in the UWMP 2005 which update those developed as part of the IWRP Study 2003.

“UWMP 2005 Baseline Water Supply Assumptions

New investments are built upon a foundation of the District’s baseline water supply. This baseline water supply is by far the largest share of future supplies. Therefore, actions are needed to safeguard and maintain this vital water supply baseline. These actions will help ensure that the assumptions made in the District’s long term water supply analysis remain valid throughout the planning horizon. The risk analysis performed under IWRP Study 2003 highlighted the importance of the planning assumptions regarding the baseline. Strategies and actions are necessary to ensure that these assumptions remain valid. Without these measures to secure the baseline, the significance of shortages under the different risk scenarios increases.

“The assumptions utilized in the UWMP 2005, which are an update to those in IWRP Study 2003 and previous planning documents, include the following:

- Local infrastructure will be reliable. (The District is currently evaluating infrastructure reliability. The level of funding necessary to ensure that infrastructure remains reliable has not been determined. The funding in the Capital Improvement Plan [CIP] and long-term water rate forecast is not sufficient to ensure infrastructure reliability.)
- The Water Treatment Improvement Project will be completed. (This project is funded and completion is expected by 2013.)
- Usable reservoir storage will decrease over time as reflected by observed siltation rates. (No funding implications are anticipated.)
- Existing water supply wells will be able to provide emergency backup supply when sufficient groundwater is available. (Funding implications not evaluated; potential to be significant.)
- The Fisheries and Aquatic Habitat Collaborative Effort settlement will be implemented. (Funding is addressed in the CIP and long-term water rate forecasts.)

- Local recharge facilities and creeks will be maintained at their current capacity. Additional “No Regrets” recharge is considered part of the baseline. (This has significant funding implications—funding for additional recharge is not in the District CIP or long-term water rate forecast.)
- The long-term viability of the groundwater sub-basins will be protected through groundwater management programs. (Some funding is addressed in long-term rate forecast—additional funding is necessary.)
- Local surface water rights will be maintained. (No significant funding implications are anticipated.)
- Contracts for imported water supplies will continue in the future. (Significant funding implications are anticipated—costs associated with maintenance of imported water infrastructure are uncertain.)
- The San Luis Reservoir low-point issue will be resolved. (Funding depends on selection of preferred solution and federal, state and water user support.)
- CALFED Stage 1 programs will be implemented. (Currently the implementation schedule for CALFED Stage I programs has been delayed and their completion is uncertain. Potential for significant increase in costs exists—funding is not identified.)
- The SFPUC contractors in Santa Clara County will extend or renew their contracts beyond the current expiration date of 2009 and SFPUC will complete its Regional Water System Improvement Program by 2015. Contract quantities will be those formally requested by the contractors in 2005. (SFPUC supplies are outside the control of the District. Retailers are expected to pump additional groundwater or request treated water from the District if SFPUC supplies are curtailed during drought—UWMP 2005 assumes additional demands from SFPUC customers during drought periods. Potential for significant increase in costs exist if District is to meet this additional demand.)
- The most recent SWP and CVP draft allocation factors¹ are reasonably valid. (Allocation factors are subject to change and are outside the control of the District.)
- The District’s banking capacity in the Semitropic Water Storage District will be maintained. The District is currently vested in Semitropic at approximately 283,000 af. The total storage capacity available to the District is 350,000 af. (No significant additional funding implications are anticipated.)

“UWMP 2005 Water Demand Assumptions

- Water demand was projected using data provided by the Association of Bay Area Governments (ABAG 2005) through 2030, land use agencies, and major water retail agencies.
- Information on planned developments received from local planning agency staff and contained in local city and county General Plans is reasonably valid.
- The District and its water retail agencies will continue planned water conservation commitments throughout the planning horizon. This includes baseline conservation programs and additional water conservation savings from IWRP Study 2003 “No Regrets” building blocks. By 2030, total annual water conservation savings are estimated to reach 98,500 af using 1992 as a baseline. (Funding for water

conservation efforts includes funds identified in the ten year water rate forecast together with additional grant funds.)

- Countywide recycled water projections from recycled water producers are reasonably valid (16,800 af by 2010 to 31,200 af by 2030). Additional recycled water use over and above these projections will be needed to meet District Board Ends Policies. (Funding for meeting water recycling projections or to meet District targets has not been identified.)
- Projections assume development of Coyote Valley as called for in the Coyote Valley Specific Plan (April 2005) and Vision North San José as described in the General Plan Amendment and development policy adopted by the San José City Council in June 2005. (A Water Supply Assessment for Coyote Valley has not been completed— funding for additional infrastructure and for Coyote Valley water supply has not been identified.)
- Meeting less than 95 percent of the demand (a 5 percent or greater shortage) in any given year is assumed to result in significant economic loss to Santa Clara County. Less than a 5 percent shortage in any given year can be managed by demand reduction programs and voluntary cutbacks, spot market transfers, and use of reserves. (The analysis conducted for this UWMP assumes meeting 100 percent of the demand.)”

Projected CVSP demand is included in the District’s 2005 Urban Water Management Plan (UWMP). The UWMP presents projected water supply and demand for normal, single dry, and multiple dry year conditions through 2030. Although the CVSP is only a small part of projected County-wide growth in water demand, as stated in the UWMP, water resource components within the County cannot be treated as isolated: they are inextricably linked.¹⁶ As such, it can be concluded that the necessary CVSP potable and non-potable water augmentation can be furnished by existing and future District sources without adversely affecting County-wide supply and demand projections.

District Water Supplies

The Santa Clara Valley Water District’s water supply relies on groundwater, imported water from the State Water and Central Valley Projects, the SFPUC Hetch-Hetchy system, recycled water, and local surface water. Local and imported water are used to recharge the groundwater basin and delivered to treatment plants. Treated water is subsequently delivered to retailers. Figure 7 shows the average use of each of these supplies by the District water supply since 1989.¹⁷

¹⁶ UWMP, p. ES-3.

¹⁷ Based on values from UWMP, p. 19.

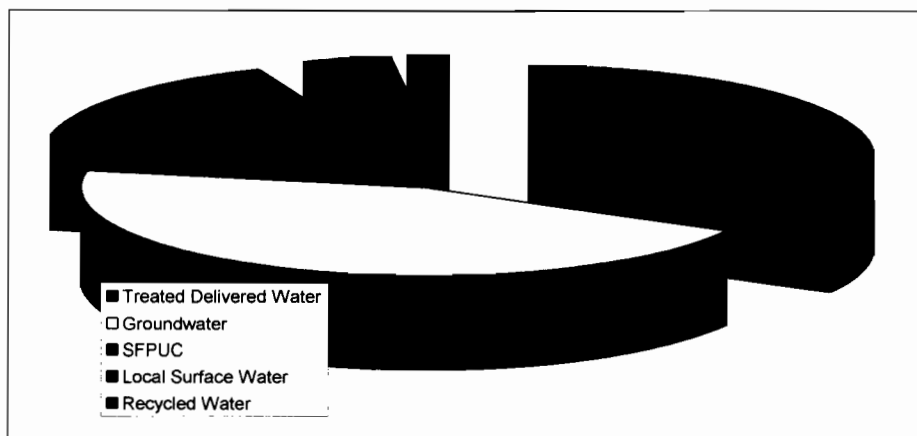


Figure 7: Relative Contribution of District Water Sources from 1989 to Present

Groundwater makes up about 45 percent of District water use. Groundwater basins are recharged naturally and through the District's managed groundwater recharge program. The relative available supply from each groundwater basin is summarized in Table 7. Since groundwater provides a substantial portion of County water supplies, and presently supplies all of the potable water used within Coyote Valley, a more comprehensive discussion of local groundwater resources is provided as Appendix D to this WSE.

Table 7: Groundwater Storage, Existing and Maximum Withdrawal for District Operated Sub-Basins¹⁸

	Operational Storage Capacity (afy)	Average Historic Annual Withdrawal 1999-2004 (afy)	Maximum Annual Historic Withdrawal 1999-2004 (afy)
Santa Clara Valley Sub-basin	350,000	107,000	115,000
Coyote Valley Sub-basin	23,000 - 30,000	7,300	8,000
Llagas Sub-basin	152,000 - 165,000	45,000	47,000
TOTAL	530,000	159,300	170,000

These values are based on data presented in the UWMP (Tables are based largely on the District groundwater model, which is described in more detail in Appendix E.) Note that the District defines operational storage capacity as the volume of groundwater that can be stored in a basin or sub-basin as a result of District management measures. Operational storage capacity is generally less than total storage capacity as it accounts for the avoidance of land subsidence and high groundwater conditions.

¹⁸ District UWMP, Table 3-4, p. 28-30, p. 32 & p. 122

The next largest District supply is treated water, which makes up about one third of total District supplies. “Treated water” refers to water produced by one of the District’s three water treatment plants. The sources of supply to the treatment plants are (untreated) imported and local surface water. Imported water comes to the county from Northern California watersheds via the Sacramento-San Joaquin Delta. This water is delivered by the State Water Project (SWP), operated and maintained by the California Department of Water Resources (DWR); and the Central Valley Project (CVP), operated and maintained by the U.S. Bureau of Reclamation. Imported water is conveyed to Santa Clara County through two main conveyance facilities: the South Bay Aqueduct, which carries SWP water from the South Bay Pumping Plant; and the Santa Clara Conduit and Pacheco Conduit, which bring CVP water from the San Luis Reservoir. The District has a contract for 100,000 acre-feet per year from the SWP. The District’s contract for CVP supply is 152,500 afy, of which 130,000 afy is for municipal and industrial needs and 22,500 afy is for agricultural needs.¹⁹

The SFPUC is the third largest water source (about 16 percent of total County supplies) and conveys water into Santa Clara County and other counties via its own facilities. The District does not control or administer SFPUC deliveries to the county; however, it is expected that many of the SFPUC retailers would pump additional groundwater if there was a shortfall in SFPUC deliveries.

Local surface water and recycled water make up the remainder of the District’s historic water supplies. Recycled water is a local water source developed by the county’s four wastewater treatment plants. The District works with the wastewater authorities in the county on partnerships to promote water recycling for non-potable uses such as irrigation and industrial uses through financial incentives and technical assistance. In south Santa Clara County, the District is the recycled water wholesaler and is responsible for the recycled water distribution system.²⁰

Figure 8 details the District’s physical water treatment, storage and distribution facilities, which are described in the UWMP text as well:²¹

“The District operates and maintains several local pipelines to transport imported raw water and locally conserved water to various locations for treatment and distribution or for groundwater recharge. This conveyance system consists of the Central Pipeline, the Rinconada Force Main, the Almaden Valley Pipeline, the Calero Pipeline, the Cross Valley Pipeline, the Penitencia Force Main, the Santa Teresa Force Main, the Vasona Canal, Kirk Ditch, the Anderson Force Main, the Coyote/Madrone Pipeline, Madrone Channel, the Almaden-Calero Canal, the Main Avenue Pipeline, the Greystone Pipeline, and Page Ditch. Another facility, the Stevens Creek Pipeline, taps off the Rinconada Force Main and conveys raw water to recharge facilities on the county’s west side. The District is also under

¹⁹ District UWMP, p. 57

²⁰ UWMP p. 22

²¹ UWMP pp. 21-22

agreement with the U.S. Bureau of Reclamation to operate and maintain the Santa Clara Conduit and the Pacheco Conduit (San Felipe Unit).

“The Rinconada WTP was constructed in 1967 and can sustain a maximum flow rate of 75 mgd. Upgrades are in the planning stage to increase production at Rinconada to 100 mgd. The Penitencia WTP was constructed in 1974 and can sustain a maximum flow rate of 42 mgd. The Santa Teresa WTP was constructed in 1989 and can sustain a maximum flow rate of 100 mgd.

“Treated water pipelines that distribute water from the treatment plants to the water retail agencies include the West Pipeline, the Campbell Distributary, the Santa Clara Distributary, the Mountain View Distributary and the Sunnyvale Distributary from Rinconada WTP; the Snell Pipeline and Graystone Pipeline from Santa Teresa WTP; and the East Pipeline, Parallel East Pipeline, and Milpitas Pipeline, which can be fed from the Santa Teresa WTP or from Penitencia WTP.”

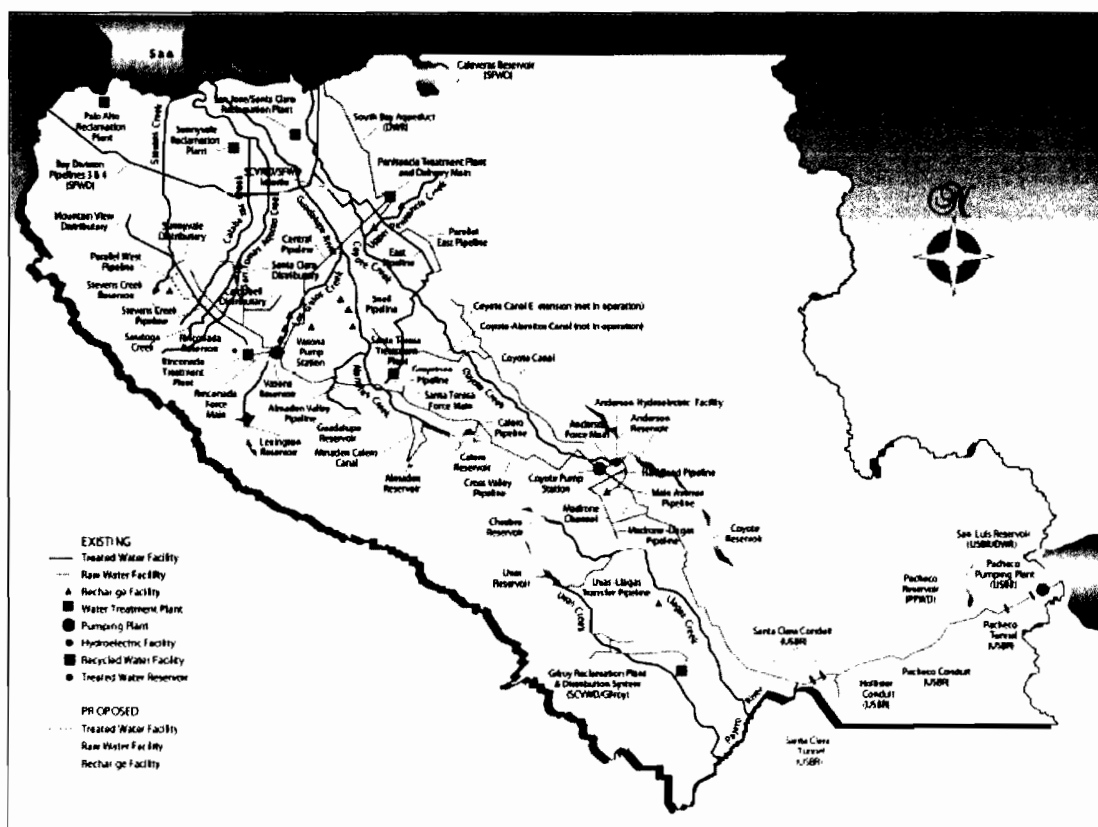


Figure 8: District Water Supply Facilities Map²²

²² UWMP, Figure 3-3

The District also participates in various exchanges and options, including, but not limited to:²³

- **San Benito County Water District Exchanges:** In the past, the District has exchanged CVP allocations with the San Benito County Water District to improve water management by taking advantage of a difference in each district's contract year. In 2004, a total of 7,000 acre-feet was exchanged.
- **Pajaro Valley Water Management Agency and Westlands Water District:** In 1998 the District jointly participated in the permanent assignment of 6,260 acre-feet from Mercy Springs Water District. Under the agreement, the District has an option for dry-year supplies totaling at least 20,000 acre-feet over a 20-year period.
- **Banking Available Supplies for Future Use:** In May, 1996 the District approved an agreement with the Semitropic Water Storage District (Semitropic) to store 45,000 acre-feet of SWP water in Semitropic's groundwater basin. In 1997, the District approved a long term agreement with Semitropic, and has banked water in years 1997-2005. The District's vesting level as of December 2005 was 283,000 acre feet and the total storage capacity available to the district is 350,000 acre-feet.²⁴

District Water Supply and Demand through 2030 (including CVSP)

A supply of adequate water must be identified for single and multiple dry year conditions, as well as normal conditions. The Santa Clara Valley Water District also uses the normal, single dry and multiple dry year concepts in its planning and management approach, where water supplies are the primary concern. These scenarios are defined as:

Normal Year	A year in the historical sequence that represents median runoff levels and patterns. Hydrology for 1985 represents a near-average year for both local rainfall and imported water and is the year determined by the District to be more representative of normal year supply.
Single Dry Year	A year with the minimum usable supply. The hydrology of 1977 reflects the driest year of record, and is the basis for single dry year conditions.
Multiple Dry Years	The average annual supply available during a multi-year drought. For Santa Clara County and Coyote Valley, this period is equivalent to the 1987 through 1992 drought.

District projected water demand and supply for each of these scenarios is presented in Tables 8 through 10. To repeat, CVSP build-out demand is included in these values.

²³ UWMP, p. 58-59

²⁴ District Review Comments on December Draft Water Supply Evaluation

Table 8: Normal-Year Santa Clara County Water Demand and Supply²⁵

	2010	2015	2020	2025	2030
Demand					
Demand without Conservation Savings	439,500	469,000	495,800	520,900	546,700
Demand With Conservation Savings	382,700	395,900	405,400	425,800	448,200
Supply					
State Water Project (SWP)	83,000	83,000	83,000	83,000	83,000
Central Valley Project (CVP)	114,400	114,400	114,400	114,400	114,400
Local Supplies	115,500	115,500	115,500	115,500	115,500
Recycled Water	16,800	21,000	25,000	28,100	31,200
San Francisco Public Utility Commission	64,600	68,900	71,000	72,600	73,000
New Supplies - Integrated Water Resources Plan Framework	----	----	----	12,200	31,100
TOTAL SUPPLY	394,300	402,800	408,900	425,800	448,200

Table 9: Single Dry Year Santa Clara County Water Demand and Supply²⁶

	2010	2015	2020	2025	2030
Demand					
Demand without Conservation Savings	439,500	469,000	495,800	520,900	546,700
Demand with Conservation Savings	382,700	395,900	405,400	425,800	448,200
Supply					
State Water Project & Semitropic	28,200	28,200	28,200	28,200	28,200
Central Valley Project (CVP)	83,600	83,600	83,600	83,600	83,600
Local Supplies	64,300	64,300	64,300	64,300	64,300
Recycled Water	16,800	21,100	25,000	28,200	31,200
San Francisco PUC	48,500	51,100	52,200	53,400	54,700
Groundwater Reserves	141,300	147,600	152,100	168,100	186,200
TOTAL SUPPLY	382,700	395,900	405,400	425,800	448,200

²⁵ Based on UWMP, Table 6-2

²⁶ From UWMP Table 6-3 Errata; groundwater reserves (2030) adjusted for algebraic balance

Table 10: Multiple Dry Years Santa Clara County Water Demand and Supply²⁷

	2010	2015	2020	2025	2030
Demand					
Demand without Conservation Savings	439,500	469,000	495,800	520,900	546,700
Demand with Conservation Savings	382,700	395,900	405,400	425,800	448,200
Supply					
State Water Project & Semitropic	69,200	69,200	69,200	69,200	69,200
Central Valley Project (CVP)	99,600	99,600	99,600	99,600	99,600
Local Supplies	100,100	100,100	100,100	100,100	100,100
Recycled Water	16,800	21,000	25,000	28,100	31,200
San Francisco PUC	51,700	54,500	55,700	57,000	58,400
Groundwater Reserves	45,300	51,500	55,800	71,800	76,000
New Supplies - Integrated Water Resources Plan Framework	----	----	----	----	13,700
TOTAL SUPPLY	382,700	395,900	405,400	425,800	448,200

Because groundwater is identified as both an existing and proposed water source by the District and for the CVSP development in particular, additional information is required pursuant to SB610 requirements (CA water code section 10910, subdivision (f)). The Coyote Valley Groundwater Sub-basin (CVGSB) is identified by the DWR as part of the Santa Clara Sub-basin (#2-9.02) in the San Francisco Bay Hydrologic Region. The CVGSB is not adjudicated, nor has it been identified as a current or projected overdrafted basin by the DWR.²⁸ More in-depth information regarding the Coyote Valley Groundwater Sub-basin, including historic pumping rates and groundwater quality data, is included in Appendix D.

The UWMP concludes that with water conservation savings, current District supplies are adequate to meet current and near future demand (to 2020) in normal and dry year scenarios,²⁹ while new investment in water supplies is needed to meet additional future demand past the year 2020. A variety of additional water supply options are presented in the District's 2003 Integrated Water Resource Plan Study (IWRP). Additionally IWRP stakeholders endorsed the District "No Regrets" investment portfolio which calls for the following three near-term investments:³⁰

²⁷ From UWMP Table 6-4; groundwater reserves (2010-2020) adjusted for algebraic balance

²⁸ DWR "Hydrologic Region Sacramento River, Coyote Valley Groundwater Basin, California's Groundwater Bulletin 118", last updated 2/27/04

²⁹ UWMP p. 133

³⁰ UWMP p. 12

28,000 acre feet of additional annual savings from agricultural, municipal, and industrial conservation (full implementation by 2020).

20,000 acre feet of additional groundwater recharge capacity consisting of approximately 13,000 afy in South County and 7,000 afy in North County.

- 60,000 acre feet of additional capacity in the Semitropic Water Bank (implemented in 2005).

The District has also developed the need for the following key programs to protect existing water supplies and infrastructure and advance planning efforts:³¹

Maintaining and expanding water conservation efforts

Investing in additional groundwater recharge capacity

Protecting groundwater basins through effective groundwater management programs

Expanding water recycling to meet projections in accordance with District Board policies

Sustaining local water supplies by maintaining local water rights

Implementing the recommendations from the District's 2005 Water Infrastructure Reliability Project Report

Investing in infrastructure projects identified in the Infrastructure Master Planning Process

Meeting water quality standards through aggressive source water protection, ongoing improvements to treatment facilities and additional infrastructure

Protecting imported water supplies by resolving contract and policy issues, supporting Bay-Delta system improvements, addressing system vulnerabilities (e.g., the San Luis Reservoir low-point problem), and supporting SFPUC efforts to implement a Capital Improvement Program (CIP)

Beyond 2020, potential additional supplies have been defined generally in both the UWMP and the IWRP. These include maximizing water conservation, advanced treatment of recycled water for groundwater recharge, development of desalination, an expanded banking participating, a new 100,000 acre-foot reservoir, any combination of which could reduce shortages through 2030

³¹ UWMP p. ES-4

to negligible levels.³² The next IWRP update is scheduled to be completed in 2008, and will define the strategy to secure supplies to 2020 and beyond.³³

Table 11 presents the comparison between County-wide water demand and Coyote Valley water demands through 2030. Demand estimates assume water conservation savings as described herein.

Table 11: County and Coyote Valley Projected Water Demands

	2010	2015	2020	2025	2030
Santa Clara County Demand (afy)	382,700	395,900	405,400	425,800	448,200
Coyote Valley Demand (afy)	7,200	11,200	13,700	16,200	18,500
Coyote Valley's Percentage of Total Demand	2%	3%	3%	4%	4%

In summary the District UWMP concludes that water supply will be adequate to meet County-wide projected demands (including the CVSP) through 2030 with a combination of water conservation, "No Regrets" portfolio implementation, and significant investments in safeguarding existing and developing new supplies. This in turn suggests that the new water sources required to meet CVSP needs may be taken from any of the District's identified future water sources without adversely affecting District-wide water supply forecasts.

³² UWMP p. 85

³³ UWMP, p. 135

EVALUATION OF WATER SUPPLY ALTERNATIVES

Each retailer concludes that as a sole water supplier to the CVSP, they could meet water demands during normal, single, and multi-year drought scenarios. All three retailers essentially propose to treat the Coyote Valley area as an integrated part of their systems, supplying potable water from the Coyote Valley Groundwater Sub-basin, and preventing the degradation of that sub-basin with supplemental water from their sources in the greater San Jose area. The City of San Jose Municipal Water System and private San Jose Water Company have access to similar water sources including treated water from the SCVWD and local groundwater. Great Oaks Water Company relies exclusively on groundwater pumped from the Santa Clara and Coyote Groundwater Sub-basins, and has the ability to move water between the two.

Each retailer purchases wholesale water from the SCVWD, whether as treated water or groundwater. Thus whichever retailer or retailers serve water to CVSP; the District remains responsible for water supply management to protect the County's resource. The District has identified the need for additional recharge to the Coyote Valley Sub-basin, so that groundwater pumping to support build-out demand will not destabilize the basin and lead to a long-term reduction in storage. In essence the water augmentation alternatives suggested by the water retailers are mechanisms to move existing and future water supplies into Coyote Valley to avoid basin destabilization through over extraction. It is possible and perhaps likely that more than a single water retailer will serve CVSP developments, so more than one delivery option may be feasible, and delivery alternatives are not considered to be mutually exclusive. The most prominent identified alternative sources of augmentation water are evaluated below.

Delivery of Groundwater from the Santa Clara Sub-basin

All three water retailers use groundwater from the Santa Clara Sub-basin as a source of supply. The Santa Clara Valley Sub-basin is not currently identified as adjudicated,³⁴ and is described more fully in Appendix D. The District estimates the long-term operational storage capacity of the Santa Clara Valley Groundwater Sub-basin (SCVSB) to be 350,000 acre-feet, and has determined groundwater withdrawal from the Santa Clara Valley Sub-basin should not exceed 200,000 acre-feet in any one year. Historic groundwater withdrawal from the SCVSB is 107,000 afy on average for 1999 through 2005.³⁵ Since water from the SCVSB is not currently used within the Plan Area, and this use may have an impact on other uses of SCVSB water, this is considered to be a new water supply for the CVSP.

(Great Oaks Water Company has infrastructure within their certificated service area that allows them to deliver water extracted from one groundwater sub-basin to the other, but Great Oaks is not currently supplying Santa Clara Sub-basin water to Coyote Valley.)

³⁴ DWR Bulletin 118

³⁵ UWMP p. 32

In Appendix E an inter-basin delivery from the Santa Clara Sub-basin of up to 5,600 afy is identified as technically feasible from a groundwater management perspective. This represents about 53 percent of the 10,500 afy remaining water demand after the maximum sustainable Coyote groundwater extraction is reached. This water would be pumped out of the ground in the Santa Clara Sub-basin and delivered to Coyote Valley through existing or new pipelines, depending upon the retailer. Figure 9 shows a general schematic of potential water delivery pipeline alignments, noting that Great Oaks Water Company has already installed a 20-inch diameter main along Santa Teresa Boulevard to the southwest of Tulare Hill. (Great Oaks has service lines south to Palm Avenue.) Retailers other than Great Oaks would be able to install parallel mains in Santa Teresa Boulevard, or along a Monterey Highway route as shown. (Great Oaks would also be able to install a main along Monterey Highway.)

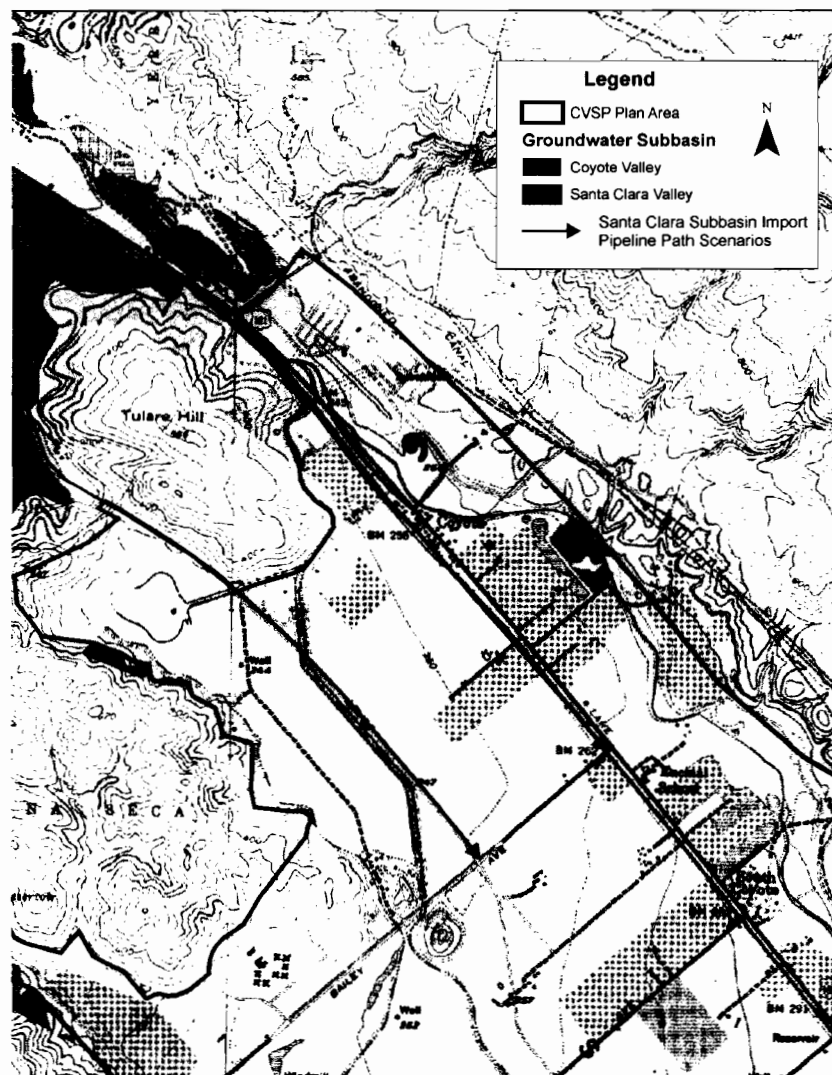


Figure 9: Delivery of Supplemental Potable Water to the Plan Area from the Santa Clara Sub-Basin

Direct Use of Treated Water from Other Sources

As an alternative to using groundwater from the Santa Clara Valley Basin, other water sources available to each retailer as outlined in their respective Water Supply Assessments could be delivered through the system pipelines just described. For instance, both the City of San Jose and San Jose Water Company have identified the direct use of water from the Santa Teresa Water Treatment Plant, which has redundant sources of water supply, as a feasible alternative. New facilities would consist of a pump station and approximately 37,000 feet of 24-inch diameter pipeline to transmit treated water from the Santa Teresa Water Treatment Plant to Coyote Valley. This alternative is shown schematically in Figure 10. The Santa Teresa Water Treatment Plant treats imported and local surface water, the sources of which were described in more detail previously.

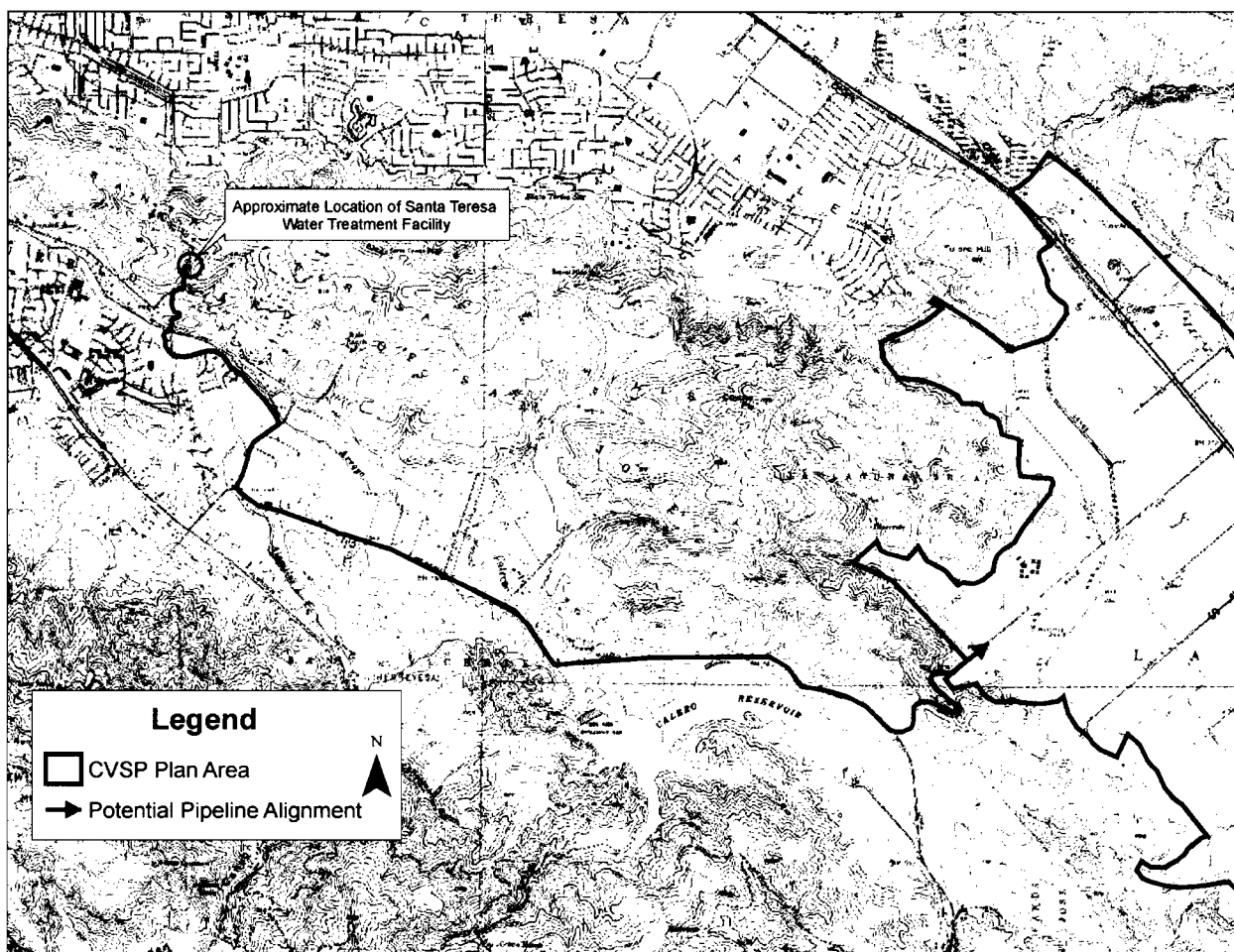


Figure 10: Schematic for Santa Teresa Water Treatment Plant Delivery to Plan Area

This alternative may also require Santa Teresa Water Treatment Plant (or other water treatment plant) expansion to accommodate CVSP demand, although (for instance) Santa Teresa currently has an excess treatment capacity of about 9,500 afy,³⁶ which would be sufficient to supply the additional 10,500 afy required in Coyote Valley in conjunction with up to 5,600 afy of supplemental groundwater from the Santa Clara Sub-basin. Since water retailers like San José Municipal Water System and San Jose Water Company prioritize use of the water from the Santa Teresa Water Treatment Plant to preserve groundwater reserves, however, reallocating this water to CVSP could cause the retailers to use more groundwater. As a result, this alternative might also require new infrastructure, such as turnouts, pipelines, and pumps, to deliver additional sources of supply and new sites for recharge in the Santa Clara Valley Groundwater Sub-basin to mitigate the cumulative impacts.

Recharge Water from Cross Valley Pipeline

The District's Cross Valley pipeline traverses the area, carrying water from the Central Valley Project's San Felipe Division and potentially water from Anderson Reservoir, which currently supplies Coyote Valley, to the District's water treatment plants and recharge facilities in the northern portions of the County. Although water from the pipeline would not be available during dry years, water would be available during normal and wetter than normal years, thus allowing other groundwater resources to recover. The District has quantified that up to 6,000 afy would be available during wetter than normal years such as 2000 and 2001, while less than 6,000 afy (the exact amount has not been quantified) would be available during years with similar weather patterns as 1995 and 1997. A schematic of the Cross Valley pipeline and a potential turnout location is shown in Figure 11.

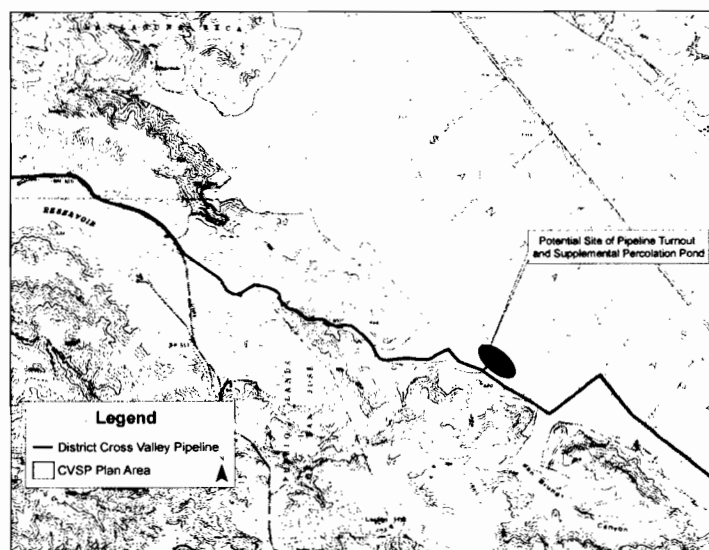


Figure 11: Cross Valley Pipeline Turnout Alternative

³⁶ SJMWS WSA p. 13

Recommended Water Supply Strategy

After reviewing the individual water supply assessments, District Board policy with respect to a preference for relying on local water supplies rather than imported water supplies, and the City's stated desire to "create a model community based on innovative planning and design,"³⁷ this Water Supply Evaluation concludes that maximizing the use of local water supplies and recycled water to meet non-potable demands and indirect potable groundwater recharge uses is the most appropriate long-term approach to water supply for Coyote Valley.

Since the groundwater basin provides water storage and distribution without extensive infrastructure, the use of this resource should be maximized. To avoid basin degradation, the District has, through numerical analyses, established a maximum sustainable annual extraction of 13,000 acre-feet from the Coyote Valley Groundwater Sub-basin with 6,000 afy of additional groundwater recharge. (There is a loss of 1,000 afy in this process, which must be recognized.)

Recycled water has an advantage as a source of recharge water relative to other sources since it is largely immune to drought related shortages and is locally controlled without being affected by statewide water supply conditions. Maximizing the use of local water (including recycled water) is also a stated goal of the District, and using recycled water has other environmental benefits including a reduction in waste discharge. Using recycled water where appropriate in Coyote Valley also frees potable water sources for beneficial uses throughout Santa Clara County.

Although some recycled water could be used within homes and industries as direct non-potable consumption, and would not be subject to the advanced treatment required of recycled water that may percolate into the groundwater basin, it is assumed for this evaluation that all recycled water utilized within the Plan Area (other than existing water supplied to Metcalf Energy Center) would undergo advanced treatment primarily for economy of scale and to avoid dual infrastructure. The advance treatment process that includes reverse osmosis tends to be about 70 percent efficient in terms of treated water production.³⁸ Therefore projected advanced treatment losses reduce the existing Silver Creek Pipeline supply from 5,600 afy to 3,900 afy, capable of supplying about 91 percent of the identified direct non-potable demand.

Table 12 summarizes CVSP water demands, compares demand to existing multiple dry year supplies, and identifies additional supplies that must be brought into the valley assuming that the maximum potential local groundwater extraction is achieved and advanced treated recycled water can be used to meet direct non-potable and indirect potable reuse demands through additional groundwater recharge. To supply CVSP demands, an additional 1,200 afy of potable water and 9,100 afy of non-potable water must be imported to Coyote Valley when considering the advance treatment efficiencies necessary to use recycled water.

³⁷ City of San Jose, Notice of Preparation of a Draft EIR for CVSP, May 31, 2005.

³⁸ Tracy Hemmeter, SCVWD, personal communication, November 17, 2006.

Table 12: CVSP Multiple Dry Year³⁹ Water Balance with Recycled Water Use (acre-feet per year)

	Total	Non-Potable	Potable
Coyote Valley Urban Reserve & North Campus Industrial Area Residential and Employment Demands	11,900	2,000	9,900
Outside of Plan Area (Morgan Hill Sphere of Influence)	2,000	400	1,600
Coyote Valley Greenbelt	4,000	1,900	2,100
Metcalf Energy Center*	4,600	0	600
Direct Water Demands	18,500	4,300	14,200
Existing Supplies	(8,000)	0	(8,000)
Supplemental Recharge Demand	1,000	6,000	(5,000)
Water Available from Silver Creek Pipeline	(3,900)	(3,900)	0
Net Remaining Demand	7,600	6,400	1,200
Advanced Treatment Process Loss	2,700	2,700	0
ADDITIONAL SUPPLIES NEEDED	10,300	9,100	1,200

* Recycled water for Metcalf Energy Center (4,000 afy) currently supplied.

Potable Water Augmentation

Under the recommended water supply strategy, the direct potable water augmentation is 1,200 afy. Based on the feasible inter-basin delivery of 5,600 afy identified previously, this annual volume of water can be furnished by sources within the greater San Jose area, including groundwater, regardless of the retailer.

In the event that DHS approval for groundwater reuse in Coyote Valley is not obtained, or it is not feasible to meet DHS requirements for such use, potable water taken from the Santa Clara Sub-basin to augment groundwater recharge in Coyote Valley could potentially be replenished using recycled recharge in the Santa Clara Sub-basin, which is much larger than and hydrogeologically distinct from the Coyote Valley Sub-basin, among other viable water supply sources described elsewhere in this document.

³⁹ The multiple dry year scenario as defined in SB610 will govern CVSP planning decisions, so similar water deficit analyses are not repeated for the normal and single dry year scenarios.

Water Conservation Measures to Reduce Potable Water Demand

The alternatives described above seek to add to the supply of water within the CVSP. Another approach is to decrease the water demand of the CVSP to minimize the need for supplemental water deliveries. Water demand projections for this project are derived with unit factors from the District and other agencies; these factors are based on water conservation measures and methods currently required by City ordinance. However, for residential and industrial indoor use, unit factors could be further reduced through additional water conservation and efficient water use such as high efficiency fixtures (e.g. high-efficiency toilets and washing machines) and metering or sub-metering for individual residential units. Outdoor water use could be reduced by measures such as high-efficiency irrigation controllers and expanded use of climate appropriate native plantings.

It is expected that water conservation and efficiency methods and devices will continue to be developed and upgraded between now and construction of the CVSP elements. The total water demand of CVSP may be decreased by utilizing the most up to date water conservation and efficiency technologies that exist at the time of detailed development design and construction. A required 1,200 afy augmentation represents about eight percent of total projected ultimate potable water demands in Coyote Valley. It is not unreasonable to believe that water conservation savings could close a significant portion of this gap.

Potential Expansion of South Bay Recycled Water Program Deliveries

The South Bay Water Recycling Program (SBWRP) delivers water from the San José/Santa Clara Water Pollution Control Plant (SJ/SC WPCP) to users of recycled water throughout the County. The District has an agreement to receive up to 5,600 afy of recycled water from the Silver Creek Pipeline in addition to recycled water already delivered to the Metcalf Energy Center (MEC). The SBWRP indicates that it could feasibly provide additional recycled water (beyond the 5,600 afy) to meet CVSP needs with the creation of infrastructure to deliver additional water to the Plan Area; i.e. additional pipelines, storage, and pumping facilities from the SBWRP system to the Plan Area. Detailed plans for new infrastructure are unavailable, as there are several alternatives for tapping into the existing SBWRP system.

Currently, the SJ/SC WPCP has a recycled water delivery capacity of about 24,000 afy (21.1 mgd)⁴⁰ serving a demand of 6,300 afy including MEC, leaving a surplus supply of 17,700 afy.⁴¹ This capacity is limited only by delivery infrastructure as the WPCP currently treats all of its inflow (120 mgd in 2005)⁴² to tertiary standards. Projected County-wide 2030 recycled water demands from the SJ/SC WPCP are 22,700 afy.⁴³ (The UWMP does not specify how much

⁴⁰ NPDES Discharge Permit No. CA0037842

⁴¹ UWMP, Table 3-8, Page 43

⁴² UWMP, Table 3-7, Page 41

⁴³ UWMP, Table 3-9, Page 48

CVSP recycled water use has been included in the 22,700 afy.) Based on existing system flows and capacities, CVSP's recycled water needs (14,700 afy) could potentially be met through existing tertiary treated wastewater from the SJ/SC WPCP, via new delivery and storage infrastructure, with no impacts to existing customers including the MEC. Since the UWMP does not specifically allocate future recycled water supplies, however, additional delivery facilities may be required to satisfy the future combined demands of CVSP and other recycled water customers. As mentioned previously, this water would need to undergo advanced treatment prior to any uses which may allow infiltration to the groundwater sub-basin.

In terms of an available water supply, however, this source is practically limitless relative to the demands on that supply. Currently 120 mgd (134,000 afy) of tertiary treated water could be made available to customers with appropriate distribution infrastructure. Even allowing for some appropriate minimum environmental discharge to San Francisco Bay, demand for this water will likely not approach the potential supply, particularly since inflows will increase with population growth. The City of San Jose has expressed a general desire to maximize the use of recycled water from the SJ/SC WPCP, with additional infrastructure if needed.⁴⁴

Figure 12 shows a schematic of the infrastructure required to utilize this supply of non-potable augmentation water. As discussed previously, inherent to this alternative is the construction of an advanced treatment facility to treat any SBWRP supplies that are utilized for groundwater recharge, irrigation, or any use which allows infiltration of the recycled water into the Coyote Groundwater Sub-basin.

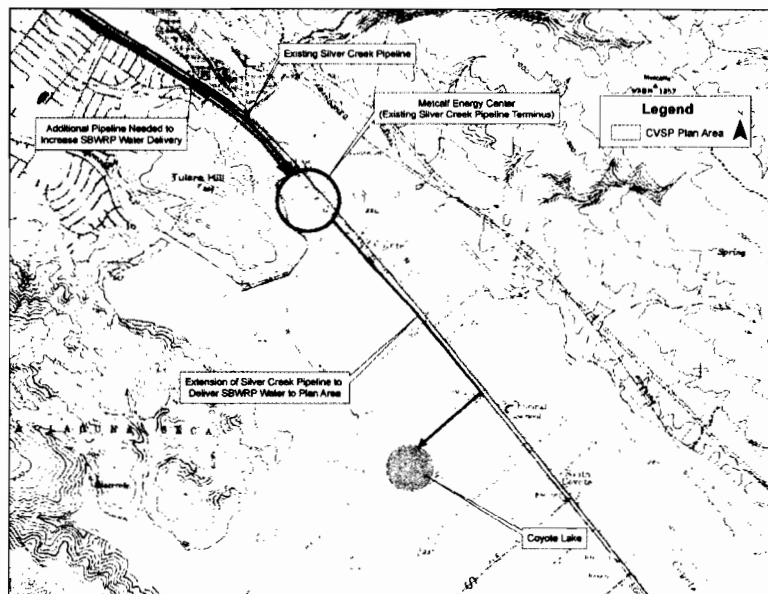


Figure 12: Expansion of SBWRP Delivery and Silver Creek Pipeline to Coyote Lake

⁴⁴ Bob Wilson, City of San Jose MWD, personal communication, November 17, 2006.

Obtaining Recycled Water from South County Regional Wastewater Authority

The South County Wastewater Treatment Plant (SCWTP) is operated by the South County Regional Wastewater Authority (SCRWA), a joint powers authority overseen by the cities of Morgan Hill and Gilroy. As of 2006, the SCWTP has a tertiary treatment capacity of about 10,000 afy, a recycled water demand to meet of 600 afy (as of 2004), and an average dry weather inflow to the SCWTP of about 7,300 afy in 2005.⁴⁵ Additional local pumping capacity, chlorination, and storage are required to fully utilize the system's tertiary treatment capacity.⁴⁶ The District acts as the wholesaler for SCRWA recycled water. The projected County-wide 2030 recycled water demand for SCRWA water is 3,200 afy.⁴⁷ Although specific users within the County are not outlined in the District UWMP, the CVSP is not identified as a potential recycled water user by the South County Recycled Water Master Plan.⁴⁸ Based on conversations with District staff, about 1,100 afy of tertiary treated water is used on-site at the SCWTP.⁴⁹

The ultimate District and SCRWA goal is to recycle as much of the discharge from the SCWTP as possible.⁵⁰ Based on this goal and the above values, there are currently 5,600 afy of excess recycled water available from the SCRWA (dry weather inflow minus existing and onsite recycled water demand). However, it is expected that influent to the SCWTP will increase to about 14,300 afy by 2030.⁵¹ SCRWA intends to increase tertiary treatment capacity as demand for recycled water increases,⁵² so it is feasible that the SCWTP could provide up to 14,300 afy in tertiary treatment capacity, less any treatment losses.

Based on the 10,000 afy existing capacity described above, and projected wastewater treatment inflows and recycled water demands, there will be about 5,700 afy of excess recycled water available in the future (existing tertiary capacity minus existing and 2030 recycled water demands). If tertiary treatment is added to the existing capacity, this net available excess ultimate supply will be increased to up to about 10,000 afy.

In order to utilize any recycled water from the SCWRA, infrastructure connecting the existing SCWRA system to the CVSP Plan Area would need to be constructed. There are currently no pipelines from the SCWTP north of Gilroy, and the required pipe length would be about 14 miles. Additionally, construction of this new pipeline has the advantage of increasing the availability of recycled water for all users between the SCRWA plant and Coyote Valley.

⁴⁵ UWMP, Page 44

⁴⁶ South County Recycled Water Master Plan, p. 3-1

⁴⁷ UWMP, Table 3-9

⁴⁸ South County Recycled Water Master Plan, Figure 2.1A

⁴⁹ Tracy Hemmeter, SCVWD, personal communication, November 17, 2006.

⁵⁰ South County Recycled Water Master Plan, p. 1-3

⁵¹ 12.75 mgd, Meeting with District Staff November 17th, 2006

⁵² South County Recycled Water Master Plan, p. 1-5

This may present additional cost sharing opportunities. Figure 13 shows a schematic view of this alternative.

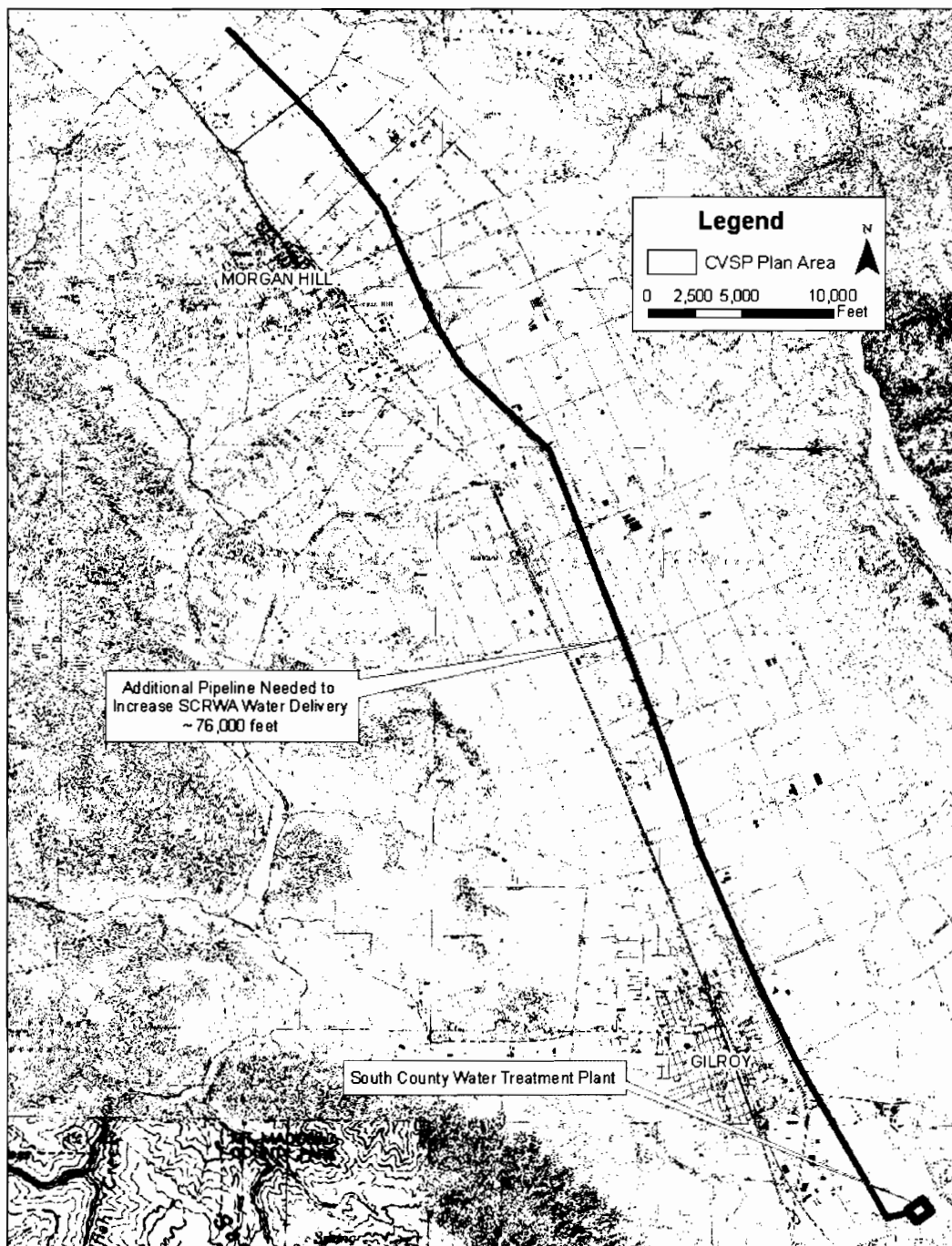


Figure 13: Conceptual Delivery Infrastructure from SCWTP to CVSP Plan Area

Summary of Recommended Water Supply Strategy

New infrastructure is needed to deliver and appropriately treat additional recycled water to the CVSP Plan Area to augment the current 8,000 afy multiple dry year groundwater supply with 6,000 afy of indirect potable groundwater recharge use, as well as the CVSP non-potable demand of 4,300 afy. Currently, the SBRWP has the infrastructure, capacity, and influent to deliver 24,000 afy of recycled water to its service area, including 4,000 afy for the Metcalf Energy Center in Coyote Valley, and an additional 5,600 afy at the end of the Silver Creek Pipeline through an agreement with the Santa Clara Valley Water District. Beyond this 9,600 afy of Coyote Valley delivery capacity, the system must also satisfy existing demands of 2,300 afy. The total recycled water supply available to CVSP for advanced treatment is currently 17,700 afy, realizing that the CVSP may compete with other future customers for this supply.

The SCWRA currently has the treatment capacity to produce 10,000 afy of recycled water (with some on site improvements), but the influent to produce only 7,300 afy. As of 2004, there was a recycled water demand of 600 afy for the SCWTP, as well as an on site demand of 1,100 afy. It is feasible that both the influent and tertiary treatment capacity will be increased to 14,300 afy by the year 2030. Of this, 3,200 afy is projected to be used by non-CVSP demands by 2030, not including on site demands. Thus, the existing excess recycled water supply of SCWRA is 5,600 afy, with a potential to increase to 10,000 afy by 2030.

Within five years, a total recycled water supply of roughly 28,000 afy could be available to CVSP from San Jose and Gilroy, or three times the annual amount needed to augment projected build-out water supply requirements in Coyote Valley, thereby lending credence to the assumption that other potential recycled water customers in San Jose, Morgan Hill, and Gilroy could be satisfied. Based on these projections, this Water Supply Evaluation concludes that if existing tertiary treated water available either solely from the SBWRP, or from a combination of SCRWA and the SBWRP, can be advanced treated to the satisfaction of the SCVWD and other jurisdictional regulatory agencies, CVSP recycled water demand can be met through projected build-out. The selection and determination of the recycled water source(s) will depend on a variety of factors, including infrastructure alternatives, cost projections and sharing opportunities, and consistency with the long-term recycled water goals and policies of the City of San Jose, Santa Clara Valley Water District, and South County Water Recycling Agency.

Through the maximum use of advanced treated recycled water, the remaining excess potable water demand is reduced to 1,200 acre-feet per year. This supply can be furnished from the Santa Clara Groundwater Sub-basin as identified previously, and is fully accounted for in the UWMP.

Figure 14 presents a schematic illustrating the recommended supply strategy summarized by Table 13. Appendix F contains a letter of concurrence from the Santa Clara Valley Water District regarding the supply strategy expressed herein.

Table 13: Recommended Multiple Dry Year Supply Strategy for Coyote Valley

Water Sources	Gross Supply (afy)	Net Supply (afy)	Relative Certainty of Source	Requirements for Use of Supply
Potable Water				
Coyote Sub-basin Groundwater	8,000	8,000	Most Certain	• Current Groundwater Management Strategies
Santa Clara Sub-basin Groundwater	1,200	1,200	More Certain	• Delivery Infrastructure • Regulatory Approval
Indirect Potable Groundwater Recharge		5,000	Less Certain	• Technical Studies • Storage and Delivery Infrastructure • Additional Treatment • Additional Energy Supplies • Treatment Waste Disposal • DHS Approval • SCVWD Approval • Recharge Basins/Injection Wells
		14,200		
Non-Potable Water				
South Bay Water Recycling	to 14,700	4,300	More Certain	• See Indirect Potable GW Reqs.
South County Water Recycling Agency	to 7,300		Less Certain	• See above, and • City of San Jose approval of importation of outside recycled water into service area
		4,300		
TOTAL SUPPLY	23,900	18,500		



SUMMARY

Build-out water demands for the CVSP are projected to total 18,500 acre-feet per year, excluding recycled water already supplied to the Metcalf Energy Center. The Santa Clara Valley Water District's 2005 Urban Water Management Plan (UWMP) includes the build-out CVSP demand and concludes that with water conservation savings and additional infrastructure, projected County-wide demand (including Coyote Valley) can be satisfied through 2030.

Three water retailers, the City of San Jose Municipal Water System, Great Oaks Water Company, and San Jose Water Company have expressed interest in serving customers within the CVSP and have prepared SB610 Water Supply Assessments (WSA). Each of the retailers concludes that they will have access to an adequate supply of water to meet build-out demand for the entirety of CVSP in conjunction with the projected demand through 2030 from the remainder of their respective service areas. Each retailer proposes to deliver water from the greater San Jose area into Coyote Valley as necessary to make up for any shortfalls in local groundwater supplies.

After reviewing available data the City concludes that existing groundwater supplies in Coyote Valley can meet 8,000 afy of the 18,500 afy build-out demand in a sustainable fashion during a multiple dry year scenario. The City also concludes that securing additional potable and non-potable supplies to meet the remaining projected CVSP demand during multiple dry years is achievable with additional planning, technical evaluation and regulatory approval. These additional supplies, while derived from currently available water sources, are not considered to be existing water supplies as defined by SB610 guidelines.

To be compatible with the UWMP, District Board policy with respect to the preference for local water supplies over imported water supplies, and the City's stated goal of the CVSP as a model project with innovative solutions, this Water Supply Evaluation recommends the following water supply master plan for Coyote Valley through build-out:

1. With the application of 6,000 afy of supplemental groundwater recharge in Coyote Valley, up to 13,000 afy of potable water may be pumped from the Coyote Valley Groundwater Sub-basin with no adverse effects in a multi-year drought.
2. The SCVWD has an agreement with the South Bay Water Recycling Program to purchase 5,600 afy of additional recycled water at the end of the existing Silver Creek Pipeline. To account for operational peaking factors, local storage facilities will be needed to harness this complete volume, and the lake feature of the CVSP is a potential storage site. Any recycled water applied to the ground will require full advanced treatment including reverse osmosis and ultraviolet disinfection, and compliance with all state mandated regulations. (Further study is required to evaluate the feasibility of said compliance.)

3. The advanced treatment process results in a loss of roughly 30 percent of the incoming water supply. Given this loss, contracted recycled water from the Silver Creek Pipeline can furnish roughly 90 percent of ultimate direct non-potable demand from the CVSP.
4. Potable water is not required for groundwater recharge, and by supplying another 9,100 afy of recycled water for advanced treatment, the use of recycled water for direct non-potable demands and indirect potable groundwater recharge can be maximized. A remaining need for 1,200 afy of potable water to be delivered to the Plan Area can be addressed through several alternative methods including:
 - a. Delivery of treated surface water or groundwater from the Santa Clara Valley Sub-basin (delivery facilities presently exist);
 - b. Direct use of treated water from the Santa Teresa Water Treatment Plant and other sources in greater San Jose; and/or
 - c. Aggressive water conservation to minimize the need for off-site water deliveries.

There is sufficient recycled water between the South Bay Recycled Water Program and the South County Water Recycling Agency to provide the CVSP's direct non-potable and indirect potable water demands with appropriate infrastructure and treatment. The use of recycled water should be maximized, because it represents a robust supply that is locally controlled and largely uninterrupted by drought conditions.

However, some measure of supply redundancy is desirable in case meeting State requirements for groundwater recharge reuse in Coyote Valley is not feasible. When analyzing the redundancy of water supplies, a County-wide scope is appropriate, as water supply throughout Santa Clara County is integrated, and as such the demands specific to the CVSP are also integrated into County-wide demands. The Santa Clara Valley Water District 2005 Urban Water Management Plan has included the Coyote Valley Specific Plan water demands in its future water demand projections. The UWMP concludes that water supply will be able to meet projected water demands through 2030 for normal, single dry, and multiple dry years through a combination of:

- The implementation of the District's "No Regrets" portfolio;
- Water conservation; and
- Significant investment to preserve and protect existing supplies while developing new supplies.

The District's 2003 Integrated Water Resource Plan Study is due to be updated in 2008, although the timing for the update depends on the completion of other planning efforts. The next definite planning update is the 2010 UWMP. This update will include the identification of some of the specific investments needed to protect existing and develop new water supplies. Further investigation of the associated costs and economic feasibility for the each of the proposed water supply alternatives is underway, and working closely with the District, the City of San José will select a preferred water supply alternative, or a combination of alternatives, as the CVSP process moves forward.

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**APPENDIX A: COYOTE VALLEY WATER SUPPLY ASSESSMENT PREPARED BY
CITY OF SAN JOSÉ MUNICIPAL WATER SYSTEM**



**Water Supply Assessment
for
Coyote Valley Specific Plan**

June 2006

Prepared for
**CITY OF SAN JOSÉ
MUNICIPAL WATER SYSTEM
ENVIRONMENTAL SERVICES DEPARTMENT**

Prepared by
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INTRODUCTION

Background

For over two decades, the City of San José has aimed to provide balanced, long-term growth in Coyote Valley. Coyote Valley is a 7,000-acre valley located 13 miles south of downtown San José, California. The valley trends northwest and is bounded by the Diablo Range in the east, Santa Cruz Mountains in the west, Coyote Narrows in the north, and the City of Morgan Hill in the south. Existing land uses in Coyote Valley include rural residential, agricultural, and industrial uses. Coyote Valley is outlined with red on **Figure 1**.

The Coyote Valley Specific Plan (CVSP) is a comprehensive urban planning document that embodies this vision and lays the foundation for a self-contained community that will integrate over 50,000 new, industry-driving jobs and 25,000 new residences (San José 2006). The CVSP area is divided into three sub-areas (Campus Industrial Area, Urban Reserve, and Greenbelt) that together extend from the Coyote Narrows in the north to near Burnett Avenue in the south; these areas are shown on **Figure 2**. Each sub-area has a distinct land use designation, as set forth in the San José 2020 General Plan. **Figure 3** illustrates the mixed-use development planned for two sub-areas, Campus Industrial Area (1,400 acres) and the Urban Reserve (2,000 acres). These two areas together make up the Urban Area and generally coincide with Coyote Service Area of the San José Municipal Water System (SJMWS), as approved by the San José City Council on June 17, 1986. The SJMWS Coyote Valley service area is shown on **Figure 4**. No development is planned for the south Coyote Valley Greenbelt (3,600 acres), which instead is planned to remain as a non-urban buffer between the cities of San José and Morgan Hill. The Greenbelt has been included in the CVSP to ensure comprehensive planning for the entire Coyote Valley area.

Existing potable water demand in Coyote Valley is primarily met by local groundwater pumped from the Coyote Valley Subbasin. Currently, SJMWS provides potable water for landscape irrigation, industrial and commercial uses to Metcalf Energy Center (MEC) and other customers located within the planned Urban Area of the CVSP shown on **Figure 4**. It should be noted that water supply to industrial and commercial customers includes supplies for drinking water, personal, and other uses. Non-potable water demand for MEC is satisfied by recycled water purchased by SJMWS from the South Bay Water Recycling Project which is operated by the San José-Santa Clara Water Pollution Control Plant (WPCP) in Alviso. As the planned CVSP Urban Area is within the SJMWS Coyote Service Area, future water demand for this area was included in the SJMWS 2005 Urban Water Management Plan - San José 2005 (2005 SJMWS UWMP). Although SJMWS has no plans to serve water supply to the Greenbelt, the existing or zoned uses for this area have been considered in this report, as future demand within the Greenbelt will rely in part on the shared groundwater resource.

A diversified portfolio of water supply sources will be essential to satisfying the future water demands of the CVSP and the Coyote Valley region as a whole. In addition to increasing groundwater production from the Coyote Valley Subbasin and continuing non-potable recycled water service, other water supply sources will be needed. These alternative sources include imported surface water from the Santa Clara Valley Water District (SCVWD) and additional raw

imported water for groundwater recharge. Implementation of water conservation measures should also be enforced to extend water supplies during periods of drought and meet the environmental sustainability goals of the CVSP.

Purpose

The California Water Code section 10910 (also termed Senate Bill 610 or SB610) requires that a water supply assessment be provided to cities and counties for a project that is subject to the California Environmental Quality Act (CEQA). The cities and counties are mandated to identify any public water system that might provide water supply to the project and then to request a water supply assessment. SJMWS was requested by the Planning Division of the City of San José to prepare a Water Supply Assessment for the CVSP, as the SJMWS may be the future retailer. This Water Supply Assessment documents sources of water supply, quantifies water demands, evaluates drought impacts, and provides a comparison of water supply and demand that is the basis for an assessment of water supply sufficiency. If the assessment concludes that water supplies are or will be insufficient, then the public water system must provide plans for acquiring the additional water. If the lead agency decides that the water supply is insufficient, the lead agency may still approve the project, but must include that determination in its findings for the project and must include substantial evidence in the record to support its approval of the project.

The purpose of this Water Supply Assessment is to document the existing and future water supplies of San José Municipal Water System (SJMWS) for its Coyote service area and compare them to the build-out water demands put forth in the Coyote Valley Specific Plan (CVSP). This comparison, conducted for both normal and drought conditions, is the basis for an assessment of water supply sufficiency in accordance with the requirements of California Water Code section 10910 (Senate Bill 610). This Water Supply Assessment focuses only on the supply SJMWS would expect to deliver as the water retailer for the CVSP.

Previous work on the supply and demand of the CVSP has been performed. As part of the development of the Environmental Impact Report (EIR), the City of San José Planning Department staff and their consultants, HMH Engineering, performed an analysis of the anticipated demand. Planning staff also consulted with Santa Clara Valley Water District (SCVWD), the wholesale supplier and manager of the groundwater basin, to aid in the estimation of future water supply to the area. SCVWD responded by preparing a memo entitled "Water Supply Availability Analysis for the Coyote Valley Specific Plan." Information provided from the City of San José Planning Department staff, HMH Engineering, and SCVWD have been used to develop this Water Supply Assessment.

Throughout this report, areas are shown to the nearest acre, and water budget items are shown to the nearest acre-foot (AF). As a result, large numbers may appear to be accurate to four or five digits, which is not the case. Future water demand, water supply, and groundwater yield are accurate only to two or possibly three significant digits. All digits are retained in the text and tables to preserve correct column totals in tables and to maintain as much accuracy as possible during subsequent calculations based on the information presented in this report.

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WATER DEMAND

This section summarizes water demands for the study area. The first part describes the factors affecting total water demand, including climate, population, and the mix of customer types, such as residential, industrial, commercial, and landscaping. The second part documents water demands not only under normal climatic conditions, but also during drought.

Climate

Climate has a significant influence on water demand on a seasonal and annual basis. This influence increases with the portion of water demand for weather influenced uses such as irrigation and cooling towers (significant in Coyote Valley). With regard to seasonal influences, rainfall in the winter months fulfills much of the water demand for irrigation, while lack of rainfall during the warm, high-evapotranspiration summer season results in peak monthly water demands that are nearly three times that of winter. With regard to annual influences, the local climate is subject to recurring droughts during which water demands would tend to increase, barring adequate water conservation measures.

Table 1 summarizes representative climate data for the study area, including average monthly precipitation, temperature, and evapotranspiration (ETO). The City of San José has a semi-arid, Mediterranean climate, characterized by warm dry summers and cool winters. As indicated in the table, precipitation occurs primarily in the winter months (November through April) and averages 14.3 inches per year.

Figure 5 is a chart of annual rainfall from calendar year 1949 through 2001 for the NOAA San José station. As illustrated in **Figure 5**, San José is subject to wide variations in annual precipitation; an extreme single-year drought occurred in 1976, when annual rainfall amounted to only 7.2 inches, or about one-half of the average rainfall. A severe, prolonged drought occurred in the late 1980s and early 1990s; over a four-year period, annual rainfall averaged only two-thirds of the annual average.

Recorded droughts have been sufficiently intense and prolonged to temporarily affect groundwater levels in the Coyote Valley Subbasin, but have not affected the long-term consistency of supply. However, paleoclimatic data indicate that extreme prolonged droughts have occurred in prehistoric California and current climate research indicates that extreme drought may occur more frequently with climate change. These mega-droughts may be considered likely to occur given a time span of centuries and would be characterized by a significant decrease in precipitation and recharge over the Santa Clara Valley. Recognizing that

a substantial portion of Santa Clara County water supply is derived from Sierran sources, a mega-drought affecting both the county and Sierra Nevada could result in severe water shortage.

Global warming is a particular concern, given the importance of the winter and spring Sierra snowpack to State and Federal water projects, both of which provide water to Santa Clara County. In fact, Santa Clara Valley Water District (SCVWD) acknowledges global warming and climate change as the most significant long-term threat to water resources management in the Santa Clara Valley. SCVWD has long incorporated the uncertainty associated with climate change in their long-term planning processes. Concern with global warming is echoed by DWR's California Water Plan Update 2005, which cautions:

"The prospect of significant climate change warrants examination of how California's water infrastructure and natural systems can be managed to accommodate or adapt to these changes, and whether more needs to be done (DWR 2005)."

Population

In general as population increases, so does water demand. The population increase due to the Coyote Specific Plan will occur in the urban area. The proposed development plan allows for a maximum of 26,394 units. According to ABAG estimates, the average occupancy of a residential unit in the City of San José is 3.2 people per unit for all types of housing (ABAG 2005). Therefore, the estimated population at build out would be 84,461 people. **Table 2** shows the population increases. It is anticipated that the development outlined in the CVSP will be completed by 2040 (San José 2006). For the purposes of this report, it is assumed that development towards full build-out will occur on a linear time frame.

Water Use Sectors and Water Demand

SJMWS currently serves water to the portions of its Coyote service area which are located within the planned CVSP Industrial Area as shown in **Figure 4**. Currently, SJMWS provides water supplies for irrigation, fire protection, and industrial uses, including the Metcalf Energy Center (MEC). SJMWS serves no residential customers in this area. MEC began operation in June 2005 and represents most of the water demand supplied by SJMWS to the Coyote area. Water demand currently served by SJMWS is shown in **Table 3** and includes both potable and recycled water uses. **Figure 6** shows water use in the Coyote service area from 1999 through 2005. Water supply data are available for 1990, 1995, and from 1999 to present. Existing demand for the entire Coyote Valley Subbasin, including demand that is satisfied by sources other than SJMWS, is shown in **Table 4**. HMH Engineering estimates total existing water demand in the planned CVSP Urban Area at 2,800 AFY, not including MEC. SJMWS supplies MEC and a portion of the remaining water demand within the planned CVSP Urban Area. SJMWS does not provide water service within the Greenbelt or outside the planned area (Morgan Hill SOI).

In addition to the existing water demand in the planned CVSP Urban Area, existing water demand outside the planned CVSP Urban Area is also satisfied by groundwater from the Coyote Valley Subbasin. This demand must be considered when assessing the sufficiency of groundwater as a water supply source. Based on land use zoning, HMH Engineering estimated

total existing water demand in the Coyote Valley Subbasin as 11,000 AFY (2,800 AFY in the planned CVSP Urban Area, 4,100 AFY served to MEC, and 4,100 AFY in areas within the Coyote Valley Subbasin outside of the planned Urban Area). It should be noted that the existing demand of MEC, as defined by HMH Engineering, includes the estimated potable and recycled water demand of the facility at full operations. Existing and future recycled water demand for MEC has been revised in this WSA based on data from the California Energy Commission (CEC 2006). MEC's water demand in 2005 was 1,232 (met by 883 AFY of recycled water and 349 AFY potable); however, under full operation, MEC water demand is expected to exceed 4,000 AFY. In this Water Supply Assessment, MEC existing water demand is based on actual water use in 2005.

The CVSP proposes development only in the planned Urban Area, with no zoning for additional development in the Greenbelt. Water demand is expected to remain the same or increase slightly in the Greenbelt and in areas not included in the CVSP but located within the Coyote Valley Subbasin. The planned CVSP Urban Area will include residential uses, commercial, light industrial, and irrigation uses.

HMH Engineering prepared an estimate of expected demand at buildout, as summarized in **Tables 5 and 6**. HMH estimated population, number of jobs, acreage of irrigation, and number of students at the area schools based on the CVSP project description. Water use coefficients for each category, shown in **Table 5**, were applied to calculate total water use as shown in **Table 6**. Indoor residential use and commercial use were based on SCVWD's estimate of 55 gallons per person per day and 30 gallons per job per day, respectively.

The rate of irrigation for all irrigated areas (residential, commercial, industrial, parks, etc.) was based on the local reference evapotranspiration (ET_o) data and was estimated by HMH at approximately 5 AFY per acre. This value may over-estimate the applied water for irrigation. The estimate does not account for effective rainfall and assumes that reference ET is applicable to all vegetation types throughout the year. Consideration of rainfall and application of ET coefficients to reflect different types of ground cover (turf, shrubs, native vegetation) would reduce the estimated irrigation rate. SCVWD, using a water budget tool, estimates an irrigation rate of 5 AFY per acre for areas that contain 100 percent turf. This estimate is reduced when examining mixtures of turf, plants, and shrubs. Areas that are 10 percent turf and 90 percent plants, shrubs, and trees may require 2.6 AFY per acre. However, this rate assumes efficient irrigation design, installation, and maintenance. Best available technologies for landscape planning and irrigation should be included in the CVSP Urban Area to reduce the irrigation demand.

The future water use in the planned CVSP Urban Area as calculated by HMH is shown in **Table 6**. In addition, estimates were made of future water demands in the Greenbelt and in areas within Coyote Valley Subbasin not covered by the CVSP. Although these uses will not be served by SJMWS, they will rely on the same groundwater subbasin as SJMWS and will affect future supply to the planned CVSP Urban Area.

An independent analysis was prepared as part of this assessment to confirm HMH's estimates for future water demand in the planned CVSP Urban Area. The CVSP project description documentation was reviewed in terms of residential, commercial, industrial, and open space areas as shown in **Table 7**. **Table 7** documents the maximum number of residential units for specific land use densities and types, the maximum floor space for commercial and industrial land uses, and the open space acreages including parks and schools. Water use coefficients for each of the major land use categories are documented in **Table 8** and discussed in the following paragraphs.

For residential land uses, indoor water demand per dwelling unit (du) was based on 3.2 people per dwelling unit for all types of housing (ABAG 2005). Residential water use was calculated as two parts, indoor and outdoor. The indoor residential use was estimated as 60 gallons per day per person (Gleick 2003). Outdoor residential water use was based on a percentage of total residential water use. The percentage of total water used outdoors varies based on the type of residential unit, with 50 percent assumed for single family units and 20 percent for multi-family units.

Commercial and industrial uses were calculated using a basic water use rate per square footage of space (Todd 2005). However, water use for restaurants can be 10 times that of other commercial uses. As some retail is expected to be restaurants, 25 percent of the neighborhood commercial category was assumed to be restaurant space. Recognizing that commercial and industrial uses include some irrigation, it was assumed that 20 percent of total water use was irrigation.

Open space/park irrigation was estimated at 3.5 AFY per acre. This irrigation estimate was based on monthly potential evapotranspiration less precipitation, and assumes a turf land cover, but does not account for soil moisture storage. It was assumed that open space and county parks along riparian corridors would not be irrigated. In addition, it was also assumed that parks contain approximately 12 percent of impervious area that is not irrigated (Rantz 1971). As discussed above, this simple analysis may over-estimate irrigation. In addition, for this independent analysis, it was considered that students at local schools will most likely live in the nearby residential units. Accordingly, water used by students in the local schools was not estimated separately as their water use is subsumed in the residential estimates.

As summarized in **Table 9**, the independent analysis performed for this report results in an estimated total future demand of 11,243 AFY in the planned CVSP Urban Area. **Table 9** also documents the water demand for MEC (4,481 AFY of potable and recycled water) and shows a grand total of 15,724 AFY. **Table 9** also provides a comparison to the respective HMH values, which are shown in the far right column. The two methods predict similar water use for each customer type and thus the independent analysis generally confirms the future demand estimated by HMH. The HMH estimates are used throughout this report to determine the sufficiency of supply for the CVSP.

Table 10a shows the HMH estimates by customer type for the planned CVSP Urban Area, while **Table 10b** shows the respective estimates for the entire Coyote Valley Subbasin. The MEC usage shown in **Table 10** reflects the estimated future use as evaluated by the

California Energy Commission (CEC 2006). In the table, multiple family residential units include mixed use residences; single family residential includes all other types of units. **Figure 7** shows the historical water demand by customer type for each year from 1999 through 2005 and the projected future water demand in five-year increments to 2040. Note that the water demand increases are assumed to be linear between 2005 and 2040.

Water Demand in Normal and Drought Periods

The Water Supply Shortage Contingency Plan summarized in the SJMWS 2005 Urban Water Management Plan creates stages of action, or in other words, various levels of conservation needed to respond to the severity of the supply reduction. Each stage represents a different level of the demand reduction program to be enforced by the City of San José during a supply shortage, beginning with Stage 1, a mandatory reduction in water use of 10 percent (corresponding to a supply reduction of 10 percent) and proceeding with Stages 2, 3, and 4, which entail mandatory reductions enforced by the City of San José and Santa Clara Valley Water District. These demand reductions and irrigation restrictions apply only to potable water. These stages were codified in the Waste Prevention and Water Shortage Measures Chapter (section 15.10.300) of the City of San José Municipal Code reproduced in **Appendix A**. The four stages of action are briefly described below.

Stage	Program	Demand Reduction	Shortage	Summary of actions taken
1	Mandatory	Up to 19 %	10-19%	<ul style="list-style-type: none"> • Irrigation of outdoor landscaping is prohibited during designated daylight hours
2	Mandatory	Up to 29 %	20-29%	<ul style="list-style-type: none"> • Continue and intensify all Stage 1 activities • Businesses are required to display “notice of water shortage” information • No potable water may be used to clean any exterior surfaces • The operation of decorative fountains using potable water is restricted
3	Mandatory	Up to 39 %	30-39%	<ul style="list-style-type: none"> • Continue and intensify all Stages 1-2 • Irrigation of outdoor landscaping is limited • No new outdoor landscaping or plantings shall be installed during the months of May through October • Public use of water from hydrants is prohibited
4	Mandatory	≥ 40%	≥ 40%	<ul style="list-style-type: none"> • Continue and intensify all Stages 1-3 activities • All irrigation of outdoor landscaping is prohibited • Filling of any swimming pool, fountain or spa is prohibited

Tables 11 and 12 present an analysis of how water demand will change in response to drought. **Table 11** represents existing land uses and customer types, while **Table 12** represents future water demand. **Tables 11a and 12a** show water demand in the SJMWS service area and **Tables 11b and 12b** document demand for the entire Coyote Valley. Water demand in these tables is divided into customer groups. For existing water use in the Greenbelt and areas outside the CVSP area, water demand was not assigned to a customer type but rather shown as "Unspecified."

The two columns on the far left show the customer types (water use sectors) and the water demand in a normal rainfall year. Two columns in the middle present the estimated percent reduction in demand during Stage 2 and 4 droughts, and the four columns on the right apply the reduction to two kinds of drought: an extreme Stage 4 single year drought and a Stage 2 multiple year drought.

In the SCVWD *2005 Urban Water Management Plan*, the reduction in supply during the 1977 drought is used to predict the reduction of supply during a future single year drought and the supply during 1988 to 1992 was used to predict supply in future multiple dry years. The reductions of supply during the 1977 single dry year and the 1988-1992 multiple dry years were 46 percent and 25 percent respectively. The goal of SJMWS during dry years is to reduce demand by the same amount as the reduction in supply. The contingency stages described above are triggered by the decrease in supply. For example, a 25 percent reduction in supply (multiple dry years) would trigger Stage 2 and a 46 percent reduction (single dry year) would trigger Stage 4. The actions taken at each stage are designed to reduce demand to match the reduction in supply.

For this analysis, the predicted demand reduction is conservatively estimated to be less than the supply reduction. As shown in **Tables 11 and 12**, the anticipated reduction for a severe single year is expected to be 30 percent, similar to the response observed in other areas of the SJMWS service areas during the 1977 single year drought. For a multiple year drought, the response is expected to be 20 percent. This response is similar to the response during 1988 to 1992 drought, when a 19 percent reduction was observed in the Evergreen portion of the SJMWS service area. Note in **Table 11a**, that a zero percent reduction is applied to Metcalf Energy Center; this reflects the extensive use of recycled water, which need not be conserved in drought.

SJMWS's water contingency plan applies only to water users within their service area. In the Coyote Valley, users in the Greenbelt and areas outside the CVSP area may not be held to the same demand management provisions. SCVWD acts as the managing agency of the groundwater basin. Although the SCVWD does not have authority to mandate demand reductions, it works with local agencies to reduce pumping and may also apply overproduction charges for groundwater pumping. For this analysis, it is assumed the users outside the SJMWS service area will decrease demand at the same rate as SJMWS customers. Demand reduction during a drought will require a community effort, encouraged through public education and other outreach programs. SCVWD has also adopted an ordinance that gives SCVWD authority to mandate water conservation if such use will have irrevocable damage on the water supply. This ordinance, 89-1, is included in **Appendix B**.

Installation of water-conserving plumbing and other demand management measures will conserve water overall, but also reduces the ability to save water in the short term, a phenomenon termed “demand hardening.” This is not accounted for in **Table 12**.

WATER CONSERVATION

One of the goals for the CVSP is to embrace environmental sustainability and provide a model of growth for the Bay Area (San José 2006). Water use efficiency is a clear part of environmental sustainability. SJMWS is currently working (in cooperation with SCVWD and other agencies) to conserve water and decrease overall system demand. Their ongoing work in conservation includes the following best management practices (BMPs):

- Water Survey Programs for Residential Customers
- Residential Plumbing Retrofit
- System Water Audits, Leak Detection and Repair
- Metering with Commodity Rates for All New Connections and Retrofit Existing
- Large Landscape Conservation Programs and Incentives
- High Efficiency Washing Machine Rebate Program
- Public Information Programs
- School Education Programs
- Conservation Programs for All CII Accounts
- Conservation Pricing
- Conservation Coordinator
- Water Waste Prohibition
- Residential ULF Toilets Replacement Programs

In addition, the WSAA prepared by SCVWD suggests additional water efficiency measures that should be promoted and implemented in CVSP. They include:

- Construction standards that require high-efficiency fixtures
- Construction standards that require high-efficiency devices for outdoor water use
- Enforcement of the City’s Model Water Efficient Landscape Ordinance
- Promotion and use of drought tolerant and native plantings in landscaping
- Dual plumbing for Commercial and Industrial buildings

These conservation measures and other future programs will decrease the overall water demand. However, as mentioned previously, the ability for short-term drought reduction would be limited as a result of demand hardening.

Indoor residential water demand is a large portion of the total potable water demand for the proposed CVSP project. If the City of San José takes an aggressive approach in water conservation, building on the programs already developed, the water demand can be decreased significantly. To quantify the decrease in demand, the largest indoor residential water uses were examined. Toilets, showers, and washing machines typically account for 50 to 75 percent of the

water used indoors in residential units. For example, it is estimated that the reduction of leaks and replacement of inefficient toilets, showerheads, washing machines, and dishwashers in residential units would result in a reduction of the average indoor water demand from 60 gallons per capita per day to about 37 gallons per capita per day (Gleick 2003). If conservation in the workplace decreased demand by the same amount (38 percent), the water demand per job would be reduced from 30 gallons per day to 18.6 gallons per day.

Outdoor water use is accounted for by estimating the irrigation of the residential, commercial and industrial land areas. As previously discussed, the irrigation demand estimates prepared by HMM Engineering may over estimate future irrigation. Revising the estimate to reflect seasonal ET demands of vegetation, different types of vegetation (drought tolerant and native plantings), soil moisture storage, and precipitation would result in an irrigation rate significantly less than the estimated 5.26 AFY per acre. In addition, SJMWS and SCVWD both have water conservation programs that aim to reduce irrigation water use through public education, systems inspections, incentives, and other programs. Irrigation demand could be decreased by selecting low water use vegetation. If the irrigated areas are mainly plants, shrubs, and trees rather than turf water use may be as low as 2.6 AFY. This also assumes best available irrigation technology is used.

Demand management and conservation would change the coefficients used to forecast future demand. **Table 13** compares the water demand coefficients with and without conservation. **Table 14** shows the total water use with conservation and without conservation. No conservation was applied to areas outside the SJMWS service area.

Actual water demand could potentially be decreased by up to 40 percent over the projected demand in the planned CVSP Urban Area. The reduced demand would increase water supply flexibility and help maintain reliability. Conservation and water use efficiency should be incorporated into the CVSP.

As previously discussed, the irrigation demand estimates prepared by HMM Engineering may over estimate future irrigation. Revising the estimate to reflect seasonal ET demands of vegetation, different types of vegetation (drought tolerant and native plantings), soil moisture storage, and precipitation would result in an irrigation rate significantly less than the estimated 5.26 AFY per acre. In addition, SJMWS and SCVWD both have water conservation programs that aim to reduce irrigation water use through public education, systems inspections, incentives, and other programs. Irrigation demand could be decreased by selecting low water use vegetation. If the irrigated areas are mainly plants, shrubs, and trees rather than turf, water use may be as low as 2.6 AFY. This also assumes best available irrigation technology is used.

Demand management and conservation would change the coefficients used to forecast future demand. **Table 13** compares the water demand coefficients with and without conservation. **Table 14** shows the total water use with conservation and without conservation. The water demand would be decreased potentially by 40 percent in the urban portion of the CVSP. No conservation was applied to areas outside the SJMWS service area. The reduced demand would increase water supply flexibility and help maintain reliability. Conservation and water use efficiency should be incorporated into the CVSP.

WATER SUPPLY

Drinking water in Coyote Valley is currently supplied by local public water system and private groundwater production. Tertiary-treated recycled water has been used in the area since 2005, but only for non-potable industrial purposes. Proposed sources of future water supply for Coyote Valley include imported water from the SCVWD water system, groundwater from the Coyote Valley Groundwater Basin and recycled water. In addition, implementation of water conservation measures is anticipated to reduce projected water demands, which will be most beneficial during dry years.

Table 15 provides a summary of all existing and proposed water supply sources. Because the CVSP urban development will significantly increase water demand, all available water sources are examined to identify the best scheme for a cost-effective, reliable and flexible water supply system for the entire Coyote Valley region.

Sources are listed on the left side of **Table 15**. Available sources include imported water from SCVWD (treated water or raw water for groundwater recharge), groundwater from Coyote Valley Subbasin, and recycled water (for industrial use and/or irrigation use). Groundwater use is subdivided into available SJMWS groundwater supply and the groundwater supply needed to meet the expected demand outside the planned CVSP Urban Area by non SJMWS wells. Recycled water is also subdivided based on use (industrial and irrigation) and appropriate treatment. Full advanced treatment is required by SCVWD for all recycled water that might impact groundwater quality in the Coyote Valley Subbasin, for example through return flows from irrigation, but not for uses such as the existing use in cooling towers at Metcalf Energy Center, or potential indoor use, which are unlikely to affect groundwater.

The next four columns on the left in **Table 15** indicate the status of the source in terms of water rights, entitlements, and contracts. As indicated, all sources have been used except recycled water for irrigation purposes. SCVWD water and recycled water is provided through contracts. The Coyote Valley Subbasin has not been adjudicated, so no rights or entitlements are indicated. Availability assumes construction of the required infrastructure to bring the maximum possible supply to the SJMWS service area (conveyance facilities within the plan area are not included). All but one of the sources listed in **Table 15** require capital outlay to expand the SJMWS system to meet the demand; recycled water for industrial uses would not require significant system expansion. Approximate capital costs to reach maximum supply are shown in **Table 15**.

Table 15 also shows the availability of these supplies for a normal year, single dry year and multiple dry years. As is discussed in the following section, each source varies differently during drought conditions; for example, treated water and groundwater are subject to degrees of reduction, while recycled water is not.

Wholesale Water Supply

Imported Water (SCVWD)

SCVWD has contracts with the California Department of Water Resources (DWR) and the United States Bureau of Reclamation (USBR) to receive, treat, and distribute surface water in the Santa Clara Valley. SCVWD also has developed surface water supplies and operates ten local reservoirs to store water for treatment at one of the three treatment facilities or to recharge the groundwater. Throughout Santa Clara County, SCVWD recharges the groundwater using local and imported water in over 30 creeks for artificial in-stream recharge and to 71 percolation ponds for groundwater recharge. SCVWD has been a leader in conjunctive use and uses imported water to supplement groundwater and maintain reliability (SCVWD December 2005). The treatment plants and major transmission lines for treated water are shown in blue on **Figure 8**.

In 1972 SCVWD entered into the first contract to supply the City of San José with imported water. Another contract initiated in 1981 remains in effect until 2051; a copy of the 1981 contract and various amendments are found in **Appendix C**. The contract establishes a schedule of water deliveries, for which the City submits a projected request for a five-year period to facilitate planning. SCVWD also contracts annually for minimum deliveries with restrictions based on peak demand and annual distribution. The City may have also access to available surplus water. Although no *treated* water is currently provided by SCVWD to Coyote Valley, additional *imported* water supplies are currently used in Coyote Valley to recharge the subbasin along Coyote Creek. SCVWD does supply treated water to the SJMWS Evergreen Service Area, as shown on **Figure 4**. The SJMWS Evergreen and Coyote service area are considered to be parts of the same water system according to the Department of Health Services (DHS). Relevant DHS documents are included in **Appendix D**.

The Water Code section 10910d requires wholesale water supply information to be provided in any Water Supply Assessment. The required information is discussed below.

- **Written contracts or other proof of entitlement to an identified water supply**
SJMWS currently has a contract with SCVWD for treated water. The contract and amendments to date are found in **Appendix C**.
- **Copies of capital outlay program for financing the delivery of a water supply that has been adopted by the public water system**
In order to use imported water as a water supply source in Coyote Valley, SJMWS would need to extend a treated water transmission line into the Coyote Valley area. The estimated cost of an extension from SCVWD's Snell pipeline to Coyote Valley would be \$8.5M (including permitting, design, construction, etc.) (SJMWS 2006). The City of San José Municipal Code Section 15.08.1130 discusses how improvements to system expansion could be financed using fees collected from the developers for cost recovery. The San José Municipal Code Chapter 15.08 is included in **Appendix E**.

- **Federal, State, and local permits and regulatory approvals for construction of necessary infrastructure associated with delivering the water supply and any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply**

SJMWS would be responsible for obtaining the required regulatory approvals from the City of San José, the local governing body and DHS, the last of which permits operation of the "Evergreen" system, which includes Evergreen, Edenvale and Coyote. DHS permit documents are included in **Appendix D**. SJMWS would be required to follow all provisions of CEQA that apply to the development of the water supply and delivery system.

The Water Code section 10910e requires additional information for water supply sources that have not been received in prior years, including identification of all entitlements of the supply. SJMWS has received deliveries of treated water for its Evergreen service area since 1972 and continues to receive deliveries. As the SJMWS Coyote service area is part of the same DHS permitted system as Evergreen service area, additional documentation is not required as part of this Water Supply Assessment.

The Water Supply Availability Analysis for the Coyote Valley Specific Plan (WSAA) discussed the option of delivering treated water from the Santa Teresa Water Treatment Plant. SCVWD estimates that the current system has approximately 8.5 MGD (9,500 AFY) of excess capacity (SCVWD 2006). In a normal year, this capacity may be used to increase water supply to the planned CVSP Urban Area. In summer, the capacity of the system may become stressed by increased peak demands. However, groundwater production may be used in lieu of treated water and thereby serve to lessen the stress on the imported water system. The additional capacity of the system does not guarantee that additional supplies will be available during all hydrologic conditions. In drought years, SCVWD resources throughout Santa Clara County are challenged, according to future projections reported in the draft 2003 SCVWD Integrated Water Resources Planning Study (draft IWRP, SCVWD 2003).

The SJMWS Evergreen service area currently relies on treated water, groundwater, and recycled water. Future water supplies were identified in the Water Supply Assessment (WSA) for the Evergreen East Hills Visioning Project. In the Evergreen WSA, treated water delivered by SCVWD was identified as the primary water supply source, to be supplemented with groundwater only when total water demands were not met by treated water supplies. As with the Evergreen East Hills WSA, this WSA relies on the use of wells as a supplementary supply during time periods when treated water is inadequate to serve anticipated demand. As indicated in the Evergreen East Hills WSA, additional groundwater pumped from the Evergreen wells could be used to replace some of Evergreen's treated water demand. In turn, the unused treated water could instead be used to serve Coyote Valley. The WSA for Evergreen examined the capacity of the wells as a component of supply. Assuming Evergreen wells are pumped to capacity (year-round, 12 hours per day), additional treated water supply available for delivery to Coyote Valley equals approximately 4,800 AFY in a normal year, 2,100 AFY in a single dry year, and 3,752 AFY in multiple dry years. These values reflect the total capacity of the wells less the required supply for the Evergreen service area. This is one alternative for increasing the delivery of treated water to Coyote Valley during drought conditions, and it illustrates the

flexibility of using treated water conjunctively with groundwater supplies. As a matter of clarification in later sections of this WSA, the term *imported water* indicates potable water derived from sources located outside Coyote Valley, including the Evergreen wells source, which is considered to be within the DHS permitted system.

Another alternative that would increase the availability of treated water to Coyote Valley involves construction of a new treatment plant. This alternative was discussed in the draft IWRP and the WSAA (SCVWD 2003, April 2005). Although it may provide additional supplies during normal hydrologic years, the increased treatment capacity will not provide reliable supplies during drought conditions. The SCVWD predicts “insufficient water will be available to meet treatment plant needs during droughts” (SCVWD April 2005).

Although SJMWS holds contracts for water deliveries for the Evergreen-Coyote system, the SCVWD maintains the right to decrease deliveries to SJMWS in the case of inadequate imported water supply. In the event of a drought, SCVWD will first reduce the amount of water imported for groundwater recharge and agricultural deliveries. If limitations on SCVWD imported water require further reductions, then deliveries to the City may be reduced.

In the 2005 Urban Water Management Plan, SCVWD assessed current supplies and the predicted reduction during drought conditions. The effects of past droughts were projected on future county-wide supply and demand to assess the reliability of the water supply. The most severe single year drought occurred in the Santa Clara Valley in 1977. If a drought similar in magnitude to the 1977 drought were to occur, SCVWD anticipates a reduction in imported water supplies and a reliance on increased groundwater pumping to meet demand (SCVWD December 2005). In the UWMP, SCVWD predicts that the supply for a single year drought from all sources of imported water (State Water Project, Central Valley Water Project, and transfers from Semitropic Water Storage District) would amount to only 54 percent of the supply during a normal year. SCVWD similarly assessed the effects of a prolonged drought similar to the one that occurred between 1987 and 1992. If a multiple year drought of that magnitude were to occur, the supplies of imported water would be 74.6 percent of the supply during a normal year. These county-wide reductions will result in reductions of imported water supply to retailers like SJMWS. These estimates are discussed here to demonstrate the magnitude of challenges that SCVWD faces during drought conditions and the degree to which treated water supplies will be reduced county-wide. This WSA has been prepared to show scenarios that can minimize the reliance of treated water during droughts.

SCVWD recognizes not only the challenges of drought but also emergencies such as earthquake and levee failure that could disrupt imported water supplies. Accordingly, SCVWD is exploring the feasibility of regional desalination facilities jointly with East Bay Municipal Utility District, San Francisco Public Utility District, and Contra Costa Water District. The Bay Area Regional Desalination Project could consist of one or more desalination facilities with an ultimate capacity of 65 million gallons per day. A feasibility study is currently underway to analyze potential facilities, benefits, costs and environmental impacts at three promising sites in the greater San Francisco Bay Area. Pilot testing is expected to begin in 2007, followed by environmental study, design, and construction to be completed in 2011. Preliminary costs for the desalinated water are expected to be in the range of \$600 to \$800 per acre foot. While the

Regional Desalination Project is progressing through the planning phases, it is uncertain at this time as a future source of water supply and accordingly, is not counted in this WSA as a supply source.

Groundwater Supply (SCVWD)

SJMWS currently operates groundwater production wells in the Coyote and Santa Clara subbasins, which together comprise the larger Santa Clara Valley Groundwater Basin (designated by the DWR as groundwater basin number 2-9.02). The locations of the subbasin boundaries are provided on **Figure 1**. As indicated in **Table 15**, groundwater pumped from the Coyote Valley Subbasin is an existing source of water supply for Coyote Valley.

Currently, three production wells constructed in 1987 (SJMWS Wells #21, #22, and #23) provide water supply for SJMWS's Coyote Valley service area. Groundwater pumped from these wells is used for landscaping, industrial, and fire protection purposes. The three wells are located along Monterey Highway north of Bailey Road in the Campus Industrial Area of the CVSP. Each well has a capacity of about 1,850 gpm (representing a total of 5,550 gpm). Assuming the wells are operated every day for 12 hours per day the annual capacity would be 4,439 AFY. However, because the wells are located only 600 feet from each other, total well capacity is likely to be less than 4,439 AFY, due to likely interference between wells and increased drawdown associated with pumping. Future water demand for the CVSP may require the construction of additional production wells in Coyote Valley to distribute production throughout the basin and make best use of available groundwater recharge and storage.

The long-term reliability of groundwater supply for the CVSP is not likely to be predicated on well capacity alone, but rather is likely to be defined by the overall state of the groundwater basin. This is recognized by the SB610 sections of the California Water Code, which require a detailed description and analysis of the location, amount, and sufficiency of groundwater to be pumped. The following sections describe the Coyote Valley Subbasin, its management, and existing conditions in terms of groundwater quantity and quality.

Coyote Valley Subbasin

The Coyote Valley Subbasin is a narrow structural trough bounded by the Diablo Range to the east and the Santa Cruz Mountains to the West. The Coyote Valley Subbasin is bordered by the Santa Clara Valley subbasin to the north and Llagas subbasin to the south. The surface area of Coyote Valley Subbasin is approximately 15 square miles, or just less than 10,000 acres (SCVWD 2005c). Coyote Valley is drained to the north by two tributaries to San Francisco Bay, Coyote Creek and Fisher Creek. Coyote Creek flows most of the length of the Coyote Valley Subbasin along its eastern extent. Coyote Creek is downstream of and benefits from controlled releases from Anderson and Coyote Reservoirs, which are situated in the Diablo Range. Fisher Creek is an unregulated stream that flows north along the western portion of the Coyote Valley Subbasin. Coyote Creek is a losing stream throughout the year, whereby surface water percolates through the stream bed and recharges local groundwater. Fisher Creek is a variably gaining and losing stream. During conditions of high groundwater, Fisher Creek receives groundwater discharge from much of the Coyote Valley floor. Fisher Creek joins Coyote Creek near Coyote Narrows, where it exits the Coyote Valley Subbasin.

The principal water bearing formations in the Coyote Valley Subbasin are alluvial deposits of unconsolidated and semi-consolidated sediments. The Coyote Valley Subbasin is unconfined and has no significant, laterally extensive clay layers (SCVWD December 2005). The direction of groundwater flow through Coyote Valley Subbasin is north to northwest towards the Coyote Narrows, where groundwater exits the basin and enters the Santa Clara Subbasin (SCVWD April 2005). To the south, the Coyote Valley Subbasin extends to the City of Morgan Hill, where it meets the Llagas Subbasin at a dynamic interface defined by a groundwater divide.

Groundwater Quantity

The alluvial deposits in the Coyote Valley Subbasin range in thickness from about 500 feet in the south to 150 feet in the north near the Coyote Narrows (Iwamura 1995). Depth to groundwater is commonly less than 20 feet in the subbasin and ranges from about 75 feet in the south to less than 5 feet in the north near the Coyote Narrows. Current groundwater elevations in the subbasin are at least 25 feet above minimum levels recorded in the late 1940s and at least 10 feet below the maximum levels recorded in 1983. These water level trends are illustrated by the hydrographs of three index wells in the Coyote Valley Subbasin monitored by SCVWD, which can be viewed online at the following address:

http://www.valleywater.org/Water/Where_Your_Water_Comes_From/Local_Water/Wells/Depth-to-Water_Index_Well_Hydrographs.shtm

Groundwater in Santa Clara County is managed by SCVWD, which works to maintain each subbasin at “full” capacity, banking water locally to protect against drought or emergency water supply interruptions. This strategy allows SCVWD to carry over surplus water in the subbasins from wet to dry periods. SCVWD has defined an operational storage capacity for the Coyote Valley Subbasin, representing the volume of usable groundwater that the subbasin is capable of storing at full capacity; this volume amounts to 25,000 AFY (SCVWD April 2005). A relatively simple static analysis was used to estimate the operational storage capacity and may overestimate the volume of groundwater that can actually be pumped from the Coyote Valley Subbasin at any given time. In the analysis, SCVWD assumes that the subbasin is a homogeneous, sand-filled reservoir and that hypothetical production wells are optimally located to maximize yield while minimizing negative impacts. These conditions are highly idealized. In reality, heterogeneity in the hydraulic conductivity of the aquifer and non-uniform distribution of groundwater production are likely to reduce the operational storage capacity of the subbasin.

It is important to understand that the operational storage capacity (even after non-ideal subbasin performance is accounted for) does not represent the perennial yield of the aquifer. SCVWD recently developed a transient, numerical (MODFLOW) groundwater flow model of the Coyote Valley Subbasin to assess the local groundwater supply. The model simulates groundwater pumping, areal recharge, managed recharge, interaction between groundwater and Coyote and Fisher Creeks, and groundwater outflow through the Coyote Narrows. Using the model, SCVWD estimated that the Coyote Valley Subbasin can reliably supply on average 8,000 AFY. Pumping 8,000 AFY would result in manageable groundwater storage declines in dry years and groundwater storage gains in wet years. Pumping in excess of 8,000 AFY (assuming

current artificial recharge operations) would result in negative environmental impacts, including declining yields in production wells, decreased groundwater flow to the Santa Clara subbasin, and reductions in groundwater storage and stream discharge (SCVWD April 2005).

The perennial yield of Coyote Valley Subbasin could be increased from 8,000 AFY to 13,000 AFY, if an additional 6,000 AFY of imported water were available for managed recharge, and new recharge facilities were constructed. Pumping in excess of 13,000 AFY (assuming enhanced artificial recharge) would lead to negative impacts, even if additional water beyond the 6,000 AFY of water were available for recharge. Specifically, the model showed that pumping in excess of 13,000 AFY would result in drying of the southwestern portion of the Coyote Valley Subbasin, due to high bedrock elevations and limited saturated thickness of the aquifer in this area. SCVWD recognizes that perennial yield estimates are likely conservative. In the model, the southern boundary between Coyote and Llagas subbasins is represented as a static divide, although this boundary is known to be a dynamic interface, and groundwater pumping is concentrated along Monterey Highway near the location of the existing SJMWS wells. The potential for further optimizing of groundwater resources in the Coyote Valley Subbasin could be achieved with improved subbasin management.

Anderson Reservoir and San Felipe Division imports from the USBR's Central Valley Project were identified as possible water supply sources that could be used to provide the additional 6,000 AFY of water for recharge operations (WSAA). Water from both sources could be delivered through the Cross Valley Pipeline. SCVWD concluded that the additional 6,000 AFY of water would be available during normal to wet years. However, water from these two sources would be limited or unavailable during dry years, such as the period between 1988 and 1994. Consequently, this additional 6,000 AFY of water is assumed to only be available to replenish the Coyote Valley Subbasin after (but not during) dry years (SCVWD April 2005).

Groundwater Quality

Protection of the Coyote Valley Subbasin from contamination and the threat of contamination is a crucial component of ensuring a reliable water supply for CVSP and Coyote Valley as a whole. Currently, groundwater quality in the Coyote Valley Subbasin is good and is in compliance with primary drinking water standards, as defined by the US EPA and Title 22 of the California Code of Regulations, with the exception of nitrate. The drinking water maximum contaminant level (MCL) for nitrate is 45 mg/L. Nitrate levels in Coyote Valley Subbasin range from 10 to 47 mg/L with higher concentrations associated with the southern half of the Coyote Valley Subbasin, where sources associated with agriculture and septic systems are concentrated. In areas with elevated nitrate concentrations, drinking water standards are satisfied through blending and treatment. In addition, since 1992 SCVWD has provided free nitrate testing to all private water supply well owners and implemented a nitrate monitoring program to reduce exposure to nitrate (SCVWD December 2005).

Significant perchlorate concentrations have not been observed in the Coyote Valley Subbasin. However, SCVWD is actively investigating a perchlorate contamination plume located in the northern portion of the Llagas subbasin, south of existing production wells operated by the City of Morgan Hill. These wells are estimated to pump about 2,000 AFY from the southern portion of the Coyote Valley Subbasin. Although groundwater in the vicinity of the

perchlorate plume flows south away from the Morgan Hill production wells and the Coyote Valley Subbasin, this assessment recognizes potential indirect impacts in the future. For example, redistribution of pumping from impacted production wells in the Llagas subbasin could affect the southern portion of the Coyote Valley Subbasin.

As required by the California Department of Health Services (DHS) for the Drinking Water Source Assessment and Protection (DWSAP) Program, drinking water source assessments have been conducted for the three municipal production wells (Wells 21, 22, and 23) serving Coyote Valley. The assessments were conducted by SJMWS staff and included information collected from City records, databases and staff, the Regional Water Quality Control Board, and field surveys. The assessments found that none of the three production wells are contaminated. Currently, land use in the valley is predominantly rural and is thus generally protected against most commercial and industrial sources of pollution. However, as an unconfined aquifer with no significant separation between the land surface and groundwater table, all of the existing production wells are classified as “moderately vulnerable” to potentially contaminating activities (PCAs), which include agricultural drainage, sewer collection systems, and leaking underground storage tanks. As Coyote Valley becomes more urbanized as projected in the CVSP, new PCAs (e.g. urban runoff, gas stations, dry cleaners, leaking sewer lines, etc.) will be concentrated in the region and pose a significant threat to groundwater quality (SCVWD April 2005). To address these concerns, SCVWD (WSAA) recommends taking steps above and beyond those required by state and federal law to protect groundwater resources, including the following:

- Avoid high-risk land uses such as underground chemical storage. If such uses cannot be avoided, establish a strict water quality monitoring program and response plan;
- Establish wellhead protection zones and locate the most hazardous PCAs far away from and down-gradient of drinking water supply wells;
- Implement best management practices with respect to collection, conveyance, and treatment of urban stormwater runoff;
- Enforce rigorous commercial and industrial pre-treatment programs to minimize discharges to the sanitary sewer system;
- Construct deep excavations and facilities to standards that prevent hydraulic connection between surface water and groundwater.
- Apply special design to sewer conveyance facilities to avoid sewage leaks.

Water Resources Management

SCVWD is the groundwater management agency in Santa Clara County (as authorized by the California legislature under the Santa Clara Valley Water District Act) and has the primary responsibility for managing the Coyote Valley Subbasin. SCVWD has worked to protect groundwater resources through artificial recharge of the groundwater basin, water conservation, acquisition of surface water and imported water supplies, and prevention of water waste.

SCVWD’s principal water supply planning documents are the draft Integrated Water Resources Planning Study 2003 (draft IWRP) and the 2005 Urban Water Management Plan.

SCVWD uses ABAG projections to forecast water demand through 2040. The draft IWRP identified risk and uncertainty that may affect the District's future management. These risks include random occurrences of hazards and extreme events, climate change, more stringent water quality standards, and demand growth greater than projected. The District is dedicated to providing a reliable water supply to the people and businesses of Santa Clara County. In order to meet these water needs in the future and manage potential risk, SCVWD maintains a flexible management of the water resources. SCVWD prepared their 2005 Urban Water Management Plan, which summarizes its groundwater supply management, groundwater monitoring, and groundwater quality management programs (SCVWD 2003, December 2005).

In its Integrated Water Resources Plan, SCVWD has analyzed the reliability of its water supplies in very wet years, average years, and dry years, including successive dry years (SCVWD, June 2004). The draft IWRP concludes that SCVWD water supplies are sufficient for very wet years and normal years. In addition, the draft IWRP states that SCVWD will be able to meet the water needs of Santa Clara County during single dry years, even with increasing demand. However, SCVWD is challenged to meet demands in multiple dry years, when water supplies become increasingly reliant upon storage reserves, including groundwater storage. The draft IWRP states that additional water supply management activities must be developed to meet the water demands of Santa Clara County businesses and residents.

In addition to drought, other factors may decrease the available imported water supply from SCVWD including earthquakes, infrastructure failures (e.g., levee failures), and reduced water allocations due to environmental concerns. SCVWD is currently researching other water sources (e.g., desalination) in order to diversify their water supply sources. The planned CVSP Urban Area also should develop and maintain a portfolio of supplies including imported water, groundwater, and recycled water to provide for long-term water supply reliability.

The groundwater supply management program aims to replenish the groundwater basin, sustain the basin's water supplies, mitigate groundwater overdraft, and maintain storage reserves for use during dry periods. SCVWD operates artificial recharge systems to augment groundwater supply, including groundwater in the vicinity of Coyote wells. SCVWD also conserves local surface water, provides imported water, operates water treatment plants, maintains water conveyance systems, supports water recycling, and encourages water conservation.

Recycled Water

The City of San José operates the San José-Santa Clara Water Pollution Control Plant (WPCP) located in Alviso. This Plant currently produces and distributes tertiary-treated recycled water that is appropriate for most non-potable uses. As described in the North San José DEIR (City of San José 2005), the WPCP current influent average is 116.8 MGD and its average discharge into San Francisco Bay is 100 MGD (dry weather peak). In response to concerns raised over the environmental impacts of wastewater discharge to San Francisco Bay, the City developed the Clean Bay Strategy and a South Bay Action Plan, which aim to maintain wastewater discharge below a level of 120 MGD. Expansion of water recycling, including provision of recycled water to Coyote Valley, is an important part of this effort.

The Silver Creek Pipeline, shown in purple on **Figure 8**, runs from the existing recycled water distribution system in Evergreen to Metcalf Energy Center (MEC) for use in their cooling tower. **Figure 8** shows only the major recycled water transmission lines that serve the Coyote Valley service area. In 2005, recycled water deliveries totaled 883 AFY; these are expected to increase to 3,920 AFY (SJMWS 2006). As the water is not being used for irrigation and will not affect the groundwater quality, the recycled water currently served to MEC has been treated to the tertiary (non-potable) level.

Additional opportunities exist to satisfy planned CVSP industrial water demand using tertiary-treated recycled water for indoor use in commercial/industrial and residential buildings. In California, approximately 46 percent of total commercial, industrial, and institutional water demand, including process (17 percent), cooling (15 percent), and non-potable restroom uses (14 percent), can be satisfied with tertiary-treated recycled water (Gleick 2003). The specific types of future businesses and their potential demand for recycled water are uncertain in the CVSP industrial area; it is assumed here that the above state-wide percentages are reasonably applied to the study area, including the likely presence of high tech industries with significant process water demand. Assuming that all process, cooling, and non-potable restroom water demands could be supplied with recycled water, industrial demand for recycled water may be as much as 916 AFY (46 percent of the non-mixed use commercial and industrial water demand, 1,991 AFY). This estimate does not include potential recycled water use for cooling towers and toilets in professionally managed high rise residential buildings; SJMWS highly recommends such uses of tertiary treated water in high rise residential buildings. These uses would increase the recycled water demand.

Table 16 shows the non-potable non-irrigation commercial/industrial demand that can be supplied by tertiary-treated recycled water. This recycled water demand is in addition to the 3,920 AFY that will supply MEC and other potential non-potable, non-irrigation water demands. Dual plumbing in commercial and industrial buildings should be mandated to help maximize recycled water use for non-potable non-irrigation water demand. SJMWS plans to continue serving tertiary treated recycled water to MEC and to expand the use of industrial recycled water but recognizes the potential need for further treatment of recycled water for irrigation uses.

As discussed in the groundwater source section, the Coyote Valley Subbasin is an unconfined aquifer system, where surface water can readily percolate and recharge groundwater. SCVWD's analyses indicates that tertiary-treated recycled water used for irrigation may negatively impact groundwater quality and recommends that "recycled water used in Coyote Valley that could percolate into the groundwater subbasin be fully advanced treated" (SCVWD April 2005). Full advanced treatment includes both reverse osmosis (RO) and ultraviolet (UV) light treatment, or similarly effective treatment options.

To meet SCVWD's stringent recycled water standards for irrigation in Coyote Valley, SCVWD that indicated that an advanced treatment facility would be needed. The current recycled water system could be expanded by up to 5 MGD (5,600 AFY) beyond MEC demand (SCVWD December 2005). This includes both industrial and irrigation uses. Irrigation uses include water that could be used to serve water features (such as the focal lake), irrigation of

commercial and industrial areas and some residential irrigation needs. SCVWD estimates that the total capital cost to construct a plant capable of treating 5,600 AFY is \$33 million. The maximum available recycled water would be reduced by approximately 25 percent after treatment, due to the loss of water in the waste stream (SJMWS 2006). After treatment of 5,600 AFY, 4,200 AFY would be available recycled water supply for irrigation and industrial uses, **Table 15**.

According to HMM's demand estimates, approximately 4,000 AFY could be used for irrigation in the urban area of the CVSP. The independent analysis of water demand estimated that about 3,848 AFY for irrigation uses and 916 AFY for industrial uses could be supplied by recycled water, as shown in **Table 16**. If an advanced treatment facility for recycled water were constructed, the full capacity of the plant could be used to serve irrigation and industrial demands. In addition to the capital cost of building a full advanced treatment plant for recycled water, other investments and considerations are needed for the additional energy use of the plant and the method of brine disposal (the byproduct of reverse osmosis). Energy costs may range from \$250 to \$400 per acre-foot, but the cost may vary as energy costs fluctuate in the future. The increase in energy usage and need for proper disposal of the brine may negatively impact the environment. In addition, the method of funding this recycled water treatment plant is currently unclear.

Water recycling is an element of SCVWD planning for future water supplies (SCVWD 2004). Water recycling is part of SCVWD's baseline projection, which envisions recycled water use throughout Santa Clara County of 16,000 AFY by 2010, including recycled water from the WPCP. SCVWD also considers water recycling as a building block with an estimated potential future use of 33,000 AFY in the Santa Clara subbasin. Use of recycled water will help reduce wastewater discharge to the Bay. SJMWS will work with SCVWD to increase recycled water usage in the Santa Clara subbasin in other portions of their service area including North San José and Evergreen (SCVWD 2003).

Water Supply in Normal and Drought Periods

Table 17a summarizes historic and current water supply sources under normal conditions for the SJMWS Coyote Valley service area. Data are reported in five-year increments in order to provide a long-term overview. Currently, groundwater from the Coyote Valley Subbasin contributes 28 percent of the total water supply to the SJMWS Coyote service area, while 72 percent is supplied by recycled water. Although the SJMWS's Coyote service area is basically the same as the CVSP Urban Area, SJMWS currently does not serve all demand in the area. **Table 17b** shows the existing demand in Coyote Valley. Sources other than SJMWS currently supply approximately 6,900 AFY to meet water demand in the Coyote Valley. Prior to 2005, all Coyote demand was met with groundwater from the Coyote Valley Subbasin.

Table 18 shows the current supply in the SJMWS Coyote service area for normal, single-dry and multiple-dry years. No decrease is indicated for the recycled water supply. Under current conditions, groundwater supply is sufficient for current groundwater demands even in drought. While groundwater levels decline during drought (for example, the recent drought of the late 1980s), stored groundwater supply is available and is recharged in subsequent wet years.

Projected water supply is expected to increase significantly, and given the fact that SCVWD already is challenged by multiple-year droughts, is likely to be significantly affected by drought. **Table 19** provides a comparison of current water supplies and water demands under normal and drought conditions

The California Water Code section 10910 (also termed Senate Bill 610 or SB610) requires a discussion of how supply will meet demand during a normal, single dry, and multiple dry water years during a 20-year projection. As water supply will be most stressed at full buildout in 2040, the projected water supply availability over the next 35 years was examined. SCVWD is the wholesale supplier of imported water and groundwater. Imported water can be treated water from the extended Snell Pipeline or additional supplies, including raw water for groundwater recharge. It should be recognized that SCVWD will be challenged to supply all users of treated water during drought conditions. SCVWD will need to remain flexible to ensure that treated water is distributed to local retailers to manage groundwater pumping so that increases in pumping do not cause negative impacts on the groundwater basin. SCVWD and SJMWS will need to work together to provide the supply needed to meet demand during drought conditions; this supply may be treated water, additional raw water for recharge, or recycled water. Demand reduction due to conservation is also an alternative to ensure the water supply is both adequate and reliable. The water supply sufficiency was assessed under the following three supply scenarios:

- Scenario 1. Imported water, groundwater, and recycled water for industrial uses
- Scenario 2. Imported water, groundwater, and recycled water for both irrigation and industrial uses
- Scenario 3. Demand conservation, imported water, groundwater, and recycled water for industrial uses

For each of these three scenarios, the following were examined: the buildout demand during drought, water supply in normal years, water supply during normal and dry years at buildout, and the sufficiency of supply. Each scenario was assessed by examining the needs of the entire Coyote Valley. The pumping for non-SJMWS wells remains the same under each scenario and is shown separately from groundwater pumping for the SJMWS service area. In all scenarios, total groundwater pumping during drought conditions does not exceed the perennial yield estimated by SCVWD, 8,000 AFY. As discussed in previous sections, this amount can be increased with adequate recharge. Water that may be available for recharge during drought conditions is considered part of the SCVWD imported water. The total available groundwater supply must be shared among SJMWS service area and the other areas of the Coyote Valley. Private groundwater pumping is expected to be 5,943 AFY in a normal year, 4,160 AFY and 4,754 AFY in single and multiple dry years respectively. **Table 15** shows the amount of groundwater available for SJMWS water supply in dry years, computed as the total groundwater supply (basin perennial yield) less the expected pumping for private wells.

Scenario 1 - Imported water, groundwater, and recycled water for industrial uses

Table S1-1 shows the expected demand for the planned CVSP Urban Area during normal years, as well as the expected decrease in demand during drought conditions, as discussed in previous sections. Note in **Table S1-1**, that a zero percent reduction is applied to Metcalf Energy Center; this reflects the extensive use of recycled water, which need not be conserved in drought. Also, commercial/industrial uses are reduced by 15 and 22.5 percent in single year and multiple year droughts respectively to account for the 25 percent of demand satisfied by recycled water. **Tables S1-2a and S1-2b** shows the water supply during normal years in five year steps from 2010 to 2040 for the planned CVSP Urban Area and the entire Coyote Valley, respectively.

The planned CVSP Urban Area normal year water supply is shown on **Figure 9a** and the water supply for the entire Coyote Valley is shown on **Figure 9b**. The phasing of the CVSP project was assumed to be linear. During normal years, SCVWD imported water will be maximized to reduce reliance on the groundwater basin and ensure an adequate reserve for dry years. However, groundwater can and should be used during peak usage times to help alleviate stress on the treated water system. Groundwater becomes a primary supply for the CVSP in 2035. **Figure 9b** shows that, in addition to the SJMWS groundwater pumping, approximately 5,900 AFY of groundwater is expected to be supplied, in a normal year, by private wells for demand outside the Coyote service area (the Greenbelt and outside the planned area). This pumping is assumed to be steady to 2040.

Table S1-3 shows the expected supply for the planned CVSP Urban Area during normal, single dry and multiple dry years. In drought years, groundwater is used as the primary source as imported water is expected to be reduced. The imported water supply in dry years is based on the portion of demand that cannot be reliably supplied by groundwater from Coyote Valley Subbasin, 4,680 AFY and 6,412 AFY in single year and multiple year droughts. Again, it is recognized that SCVWD is challenged during drought conditions and may need to develop new projects to secure additional water supply. Recycled water is recognized for its reliability during dry conditions. Accordingly, in **Table S1-3**, the water supply from recycled water remains constant during normal, single dry, and multiple dry years. **Table S1-4** shows that the expected supply would meet the demand.

The cost of this scenario would be \$8.5 million to extend treated water pipeline. There may be additional costs to install new wells in order to optimize pumping.

Scenario 2 - Imported water, groundwater, and recycled water for both irrigation and industrial uses

Table S2-1 shows the expected demand for the planned CVSP Urban Area during normal years, as well as the expected decrease in demand during drought conditions, as discussed in previous sections. In this scenario, recycled water use is maximized for both industrial and irrigation needs. Because recycled water supply remains the same during drought conditions, the demand will also stay the same. This is approximated in **Table S2-1** by weighting the expected demand reduction by the percent of the demand that is anticipated to be supplied from recycled water. For example the 2040 total commercial/industrial demand for the planned CVSP Urban

Area is expected to be 3,002 AF. The amount of the demand to be supplied by recycled water is 916 AF (the irrigation and non-potable demand). The commercial/industrial demand met with 69 percent potable water, and thus the decrease during drought will affect only this portion of the demand. In a Stage 2 drought, the potable demand would be decreased by 20 percent, or 13.8 percent of the total demand (69 percent of the 20 percent reduction). This same methodology is applied to single and multiple family residences and irrigation uses based on the percent of potable demand recycled water will satisfy.

Tables S2-2a and S2-2b shows the water supply during normal years in five year steps from 2010 to 2040 for the planned CVSP Urban Area and the entire Coyote Valley, respectively. This is also shown on **Figures 9c and 9d**. The phasing of the CVSP project and the demand for recycled water was assumed linear. As in Scenario 1, SCVWD imported water will be maximized in normal years to reduce reliance on the groundwater basin and ensure an adequate reserve for dry years. Groundwater can and should be used during peak usage times to help alleviate stress on the treated water system. As Scenario 2 maximizes all uses of recycled water, groundwater would not be needed as a primary water source during normal years.

Table S2-3 shows the expected supply for the planned CVSP Urban Area in normal, single dry and multiple dry years. Recycled water supply is not expected to be reduced during drought conditions. With the diverse supplies in Scenario 2, much less imported water would be needed in dry years than in Scenario 1. Because recycled water is a reliable supply during drought conditions, the planned CVSP Urban Area would require about half as much imported water. **Table S2-4** confirms that the water supply in this scenario would meet demand.

This scenario requires the construction of a new recycled water treatment plant as the treatment level required by SCVWD for irrigation use is fully advanced treated. The cost of this plant would be approximately \$33 million. As discussed above the funding of this plant has not yet been planned. To supply treated water, \$8.5 million is needed to extend the pipeline. There may be additional costs to install new wells in order to optimize pumping.

Scenario 3 - Imported water, groundwater, recycled water for industrial uses, and demand conservation

This scenario looks at water conservation as an approach to a sufficient water supply. Water conservation, as discussed in previous sections, was applied to reduce demand during normal years. Water conservation measures were assumed to be implemented only in the SJMWS service area. The demand in normal years and the expected drought reduction is shown in **Table S3-1**. Although water conservation decreases demand during normal years, this high level of conservation results in a reduced ability to save water in the short term, or demand hardening. The extent of demand hardening is not easily quantified, but for the purpose of this analysis, it was assumed that demand reduction during a drought would be approximately half that as without hardening (10 percent and 15 percent in single and multiple dry years respectively).

Tables S3-2a and S3-2b shows the water supply during normal years in five year steps from 2010 to 2040 for the planned CVSP Urban Area and the entire Coyote Valley, respectively. This is also shown on **Figures 9e and 9f**. As illustrated, the overall supply is less than the other

scenarios because demand is reduced. As in the previous scenarios, imported water is relied on during normal years to ensure adequate groundwater reserves during drought conditions. Groundwater supplies are not needed in normal years to meet demand. However, groundwater may still be used as supplementary supply during peak usage times.

Table S3-3 shows the expected water supply during drought conditions for the planned CVSP Urban Area. As imported water is expected to be limited in these dry times, groundwater pumping is increased to meet demand. The amount of imported water needed is similar to that of Scenario 2, and about half of the needed imported supplies in Scenario 1. **Table S3-4** confirms that the water supply in the planned CVSP Urban Area would meet demand.

This scenario requires that the latest conservation technology be mandated in all new developments in the CVSP. This may require local ordinances, conservation rate structures, or other measures to encourage and/or enforce these measures. This scenario also requires the pipeline extension for treated water at the cost of \$8.5 million. There may be additional costs to install new wells in order to optimize pumping.

COMPARISON OF SUPPLY AND DEMAND

Table 19 provides a comparison of current water supplies and water demands under normal and drought conditions, while **Tables S1-4, S2-4 and S3-4** compare water supplies and demands in 2040 for the planned CVSP Urban Area under Scenarios 1, 2, and 3, respectively.

Future demands can only be met through a portfolio of water supplies including imported water from SCVWD, groundwater from the Coyote Valley Subbasin, and recycled water. Each scenario in the portfolio provides supplies to meet buildout demand during drought. Demand can be satisfied by each scenario assessed. Scenario 1 requires groundwater pumping during normal years after 2035 and requires approximately 6,000 AFY of imported water from the SCVWD in multiple year droughts, a time when the SCVWD acknowledges challenges in meeting county-wide demands. Scenario 2 relies less on imported water and groundwater, but requires the capital investment to build an advanced recycled water treatment plant. Decreased reliance on groundwater during normal years allows the groundwater basin to be used as reserve in case of drought and ensures a faster basin recovery after a drought. Scenario 3 also relies less on imported and groundwater than Scenario 1, but the assumed water conservation measures must be implemented on a large scale.

Water supply will be challenged to meet water demand during drought conditions, especially during multiple year droughts. There are options for supply sources to meet demand including provision of imported water, increased groundwater pumping, recycled water (a reliable supply during drought), and increased encouragement and enforcement of water conservation during drought. The City's Water Supply Shortage Contingency Plan allows SJMWS to mandate demand reduction based on the reduction of water supply during dry conditions. During all hydrologic periods, water use efficiency in the SJMWS service area and areas in the Coyote Valley outside of the SJMWS service area should be encouraged. This is consistent with the goals of the CVSP to create an environmentally sustainable community. Water use efficiency is central in achieving this goal.

Effective management of the groundwater is fundamental to achieve environmental sustainability and to ensure that groundwater will continue to be a reliable water supply source during all hydrologic conditions. By using additional water sources during wet and normal years to recharge the groundwater subbasin, the subbasin can serve as a reserve during drought conditions. Storm water in the planned CVSP Urban Area can be captured and recharged to the aquifer further contributing to the storage of the basin. Efficient placement of new wells is recommended to maximize the operational yield of the Coyote Valley Subbasin and to protect the groundwater supply from potentially contaminating activities. Ongoing management and monitoring in the basin may increase the understanding of the basin, and the available yield during drought conditions may be augmented.

CONCLUSIONS

1. The proposed CVSP entails modification of plans and policies, including the City's General Plan, and implementation of infrastructure improvements to support proposed development.
2. The proposed project results in increased water demands; this report addresses the Coyote service area of the City of San José Municipal Water System (SJMWS). Consideration of all future pumping in Coyote Valley Subbasin is included.
3. Proposed sources of water supply include additional imported water from Santa Clara Valley Water District (SCVWD), groundwater from the Coyote Valley groundwater subbasin, which is managed by SCVWD, and recycled water.
4. In the SJMWS Coyote service area, water demand could increase from the current (2005) 1,232 AFY to 16,768 AFY at full buildout of the CVSP in 2040.
5. Groundwater has been identified as a source of water supply for the project. The City has three wells serving Coyote and has used groundwater in the past as supply.
6. Groundwater is actively managed by SCVWD to replenish the groundwater basin, sustain the basin's water supplies, help to mitigate groundwater overdraft, and sustain storage reserves for use during dry periods.
7. Recycled water has been identified as a water supply source.
8. Three scenarios are set forth to ensure sufficiency of supply and flexibility for suppliers. Each scenario requires the extension the SCVWD treated water pipeline to Coyote Valley at the cost of approximately \$8.5 million, as well as the possible construction of additional wells at a cost of approximately \$0.75 million each.
9. Scenario 1 relies on imported water for SCVWD during single and multiple year droughts and at buildout will require groundwater pumping in normal hydrologic years.

10. Scenario 2 maximizes recycled water use in the planned CVSP Urban Area and is less dependent on imported water during droughts. Under this scenario an advanced treatment plant for recycled water must be constructed, the estimated cost of which is \$33 million.
11. Scenario 3 examines water conservation measures to decrease demand in the planned CVSP Urban Area. This scenario also reduces reliance on imported water during drought conditions but will require implementation of the latest water conservation measures.

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TABLES

Table 1. Average Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Precip, in	3.06	2.53	2.30	1.07	0.39	0.09	0.04	0.08	0.20	0.72	1.74	2.32	14.30
Temp, °F	56.00	59.22	62.78	65.89	71.45	75.69	78.76	78.75	77.63	71.20	61.43	55.70	67.88
ETO, in	1.35	1.87	3.45	5.03	5.93	6.71	7.11	6.29	4.84	3.61	1.8	1.36	49.35

Sources: Precipitation and temperature from the NOAA NCDC San Jose station, and evapotranspiration from CIMIS San Jose station

Table 2. Population Projections

	2010	2015	2020	2025	2030	2035	2040
CVSP	12,066	24,132	36,197	48,263	60,329	72,395	84,461

Table 3. Existing Water Demand by Water Use Sectors (SJMWS Served Area only), AFY

Customer Type	1990	1995	2000	2005
Residence - Single	0	0	0	0
Residence - Multi	0	0	0	0
Irrigation	0	0	51	6
Commercial/Industrial	0	0	0	0
Metcalf Energy Center*	0	0	0	1,224
Temporary	0	0	10	2
Unspecified	50	55	0	0
TOTAL	50	55	61	1,232

* includes potable and recycled water demand

Table 4. Summary of Existing Water Demand in Coyote Groundwater Subbasin

Area	Water Demand (AFY)
CVSP Urban Area	2,800
Greenbelt Area	2,100
Outside Planned Area (Morgan Hill SOI)	2,000
Metcalf Energy Center (MEC)*	1,224
TOTAL	8,124

* Potable and Recycled Water

Table 5. Water Use Coefficients Used in HMM Analysis

Water Use Type	Unit	GPD	AFY
Residential Indoor	per person	55	0.06
Workplace	per job	30	0.03
Outdoor	per acre	4690	5.26

Table 6. Summary of HMMH Water Use Estimates at Buildout

Area and Customer Type				Indoor		Outdoor		Total Water Use	
				Irrigated Area	Units	MGD	MGD	MGD	AFY
CVSP Urban Area									
Residential		71,200	People	344.0		3.92	1.61	5.53	6,200
Workplace		43,000	Jobs	67.0		1.29	0.31	1.60	1,799
Mixed Use - Residential		8,500	People	207.0		0.47	0.97	1.44	1,613
Mixed Use - Workplace		7,900	Jobs			0.24	0.00	0.24	266
Schools		10,200	Students	62.0		0.31	0.29	0.60	669
Jobs (retail, school, public facilities)		5,000	Jobs	19.0		0.15	0.09	0.24	268
Parks and Publicly Irrigated Area (Right of ways, roads)				225.0		0.00	1.06	1.06	1,183
Coyote Lake				55.0		0.00	0.26	0.26	289
Subtotal						6.37	4.59	10.96	12,287
Outside CVSP Urban Area									
Greenbelt								3.69	4,138
Outside Planned Area								1.61	1,805
Subtotal								5.30	5,943
Metcalf Energy Center									
Metcalf Energy Center*								3.80	4,481
Total									
Total						6.37	4.59	20.06	22,711

* includes potable and recycled water demand, adjusted from HMMH estimates based on SJMWS data

Table 7. Summary of Land Use Development (including only CVSP Urban Area)

	Residential		Commercial	Industrial		
	Maximum Units	Maximum Population	Maximum floor area (sq. ft.)		Open Space (acres)	Irrigated Area (acres)
Residential						
Low Density	355	1,136				
Medium Density	6,394	20,461				
Medium-High Density	10,467	33,494				
High Density	3,889	12,445				
Mid-Rise	1,176	3,763				
Hi-Rise	372	1,190				
TOTAL	22,653	72,490				
Commercial						
Neighborhood			317,100			
Core/Regional			202,500			
TOTAL			519,600			
Industrial/Workplace						
R&D				97,636		
Support Industrial				135,020		
Campus Industrial				3,484,307		
Industrial Park/Office				7,092,832		
Professional/Administrative Office				1,329,947		
TOTAL				12,139,742		
Mixed Use						
Live Work/Loft	311	995		155,500		
Office over Commercial	0	0	708,294	4,317,317		
Residential over optional office	1,862	5,958	351,788	135,900		
Residential over optional commercial	1,310	4,192	351,788	0		
Hi rise over office	258	826	0	100,500		
TOTAL	3,741	11,971	1,411,870	4,709,217		
Parks/Open Space						
Public Parks					157	138
County Park					157	0
School Yards					170	150
Open Space					95	0
TOTAL					579	288
TOTAL CVSP						
TOTAL CVSP	26,394	84,461	1,931,470	16,848,959	579	

Table 8. Water Use Coefficients for Independent Analysis

Residential	Indoor				Outdoor			Total	
	People/unit	Gallons per capita	Gallons per du	AFY	portion used outdoors	Gallons per du	AFY	gdu	AFY
Low Density	3.2	60	192	0.215	50%	192	0.215	384	0.430
Medium Density	3.2	60	192	0.215	50%	192	0.215	384	0.430
Medium-High Density	3.2	60	192	0.215	20%	48	0.054	240	0.269
High Density	3.2	60	192	0.215	20%	48	0.054	240	0.269
Mid-Rise	3.2	60	192	0.215	20%	48	0.054	240	0.269
Hi-Rise	3.2	60	192	0.215	20%	48	0.054	240	0.269

Other			Gal /sq ft	AFY	portion used outdoors		AFY		AFY
Commercial			0.073	0.0001	20%		0.0000		0.0001
Restaurant			0.730	0.0008	20%		0.0002		0.0010
Industrial			0.075	0.0001	20%		0.0000		0.0001
Parks				0	100%		3.4959		3.4959

Table 9. Independent Analysis of Estimated Water Use for CVSP Urban Area Only

CVSP Development		WU Coefficient (AFY/unit)	ESTIMATED WATER USE (AFY)	HMH Estimates (AFY)
Residential				
	Dwelling Units			
Low Density	355	0.430	153	
Medium Density	6,394	0.430	2,752	
Medium-High Density	10,467	0.269	2,816	
High Density	3,889	0.269	1,046	
Mid-Rise	1,176	0.269	316	
Hi-Rise	372	0.269	100	
Mixed Use Residential	3,741	0.269	1,006	
TOTAL			8,190	7,813
Commercial/Industrial				
	Max floor area sq. ft.			
Restaurant	79,275	0.0010	81	
Other Neighborhood	237,825	0.0001	24	
Other Commercial	202,500	0.0001	21	
Industrial	12,139,742	0.0001	1,277	
Mixed Use Commerical/Industrial	6,121,087	0.0001	644	
TOTAL			2,048	2,333
Schools				
Students				669
TOTAL				669
Public Parks				
	Acres			
Public Parks	288	3.496	1,006	
TOTAL			1,006	1,473
CVSP Urban Area Total				
TOTAL			11,243	12,287
Metcalf Energy Center				
Potable			561	600
Recycled			3,920	3,700
TOTAL			4,481	4,300
GRAND TOTAL				
GRAND TOTAL			15,724	16,587

Table 10a. Proposed Water Demand (CVSP Urban Area only), AFY

Customer Type	2010	2015	2020	2025	2030	2035	2040
Residence - Single	886	1,771	2,657	3,543	4,429	5,314	6,200
Residence - Multi	230	461	691	922	1,152	1,382	1,613
Irrigation	210	421	631	841	1,052	1,262	1,473
Commercial/Industrial	429	858	1,287	1,715	2,144	2,573	3,002
Metcalf Energy Center*	4,481	4,481	4,481	4,481	4,481	4,481	4,481
Temporary	0	0	0	0	0	0	0
TOTAL	6,236	7,991	9,747	11,502	13,257	15,013	16,768

* includes potable and recycled water demand, adjusted from HMM estimates based on SJMWS data

Table 10b. Proposed Water Demand (Total Coyote Valley Area), AFY

Customer Type	2010	2015	2020	2025	2030	2035	2040
Residence - Single	1,946	2,832	3,718	4,603	5,489	6,375	7,261
Residence - Multi	230	461	691	922	1,152	1,382	1,613
Irrigation	4,410	4,621	4,831	5,041	5,252	5,462	5,673
Commercial/Industrial	1,111	1,540	1,969	2,397	2,826	3,255	3,684
Metcalf Energy Center*	4,481	4,481	4,481	4,481	4,481	4,481	4,481
Temporary	0	0	0	0	0	0	0
TOTAL	12,179	13,934	15,689	17,445	19,200	20,955	22,711

* includes potable and recycled water demand, adjusted from HMM estimates based on SJMWS data

Table 11a. Existing Water Demand in Normal and Dry Years (SJMWS Service Area), AFY

Customer type	Normal (2005)	Estimated Drought Reduction		Stage 4		Stage 2			
		Stage 2	Stage 4	Single dry	Multiple Dry Year 2	Multiple Dry Year 3	Multiple Dry Year 4	Multiple Dry Year 4	Multiple Dry Year 4
Residence - Single	0			0	0	0	0	0	0
Residence - Multi	0			0	0	0	0	0	0
Irrigation	6	20.0%	30.0%	4.2	4.8	4.8	4.8	4.8	4.8
Commercial/Industrial	0	20.0%	30.0%	0	0	0	0	0	0
Metcalf Energy Center*	1,224	0.0%	0.0%	1,224.0	1,224	1,224	1,224	1,224	1,224
Unspecified	2	20.0%	30.0%	1.4	1.6	1.6	1.6	1.6	1.6
TOTAL	1,232	15.0%	22.5%	1,229.6	1,230.4	1,230.4	1,230.4	1,230.4	1,230.4

* includes potable and recycled water demand

Table 11b. Existing Water Demand in Normal and Dry Years (All Coyote Valley), AFY

Customer type	Normal (2005)	Estimated Drought Reduction		Stage 4		Stage 2			
		Stage 2	Stage 4	Single dry	Multiple Dry Year 2	Multiple Dry Year 3	Multiple Dry Year 4	Multiple Dry Year 4	Multiple Dry Year 4
Residence - Single	0			0	0	0	0	0	0
Residence - Multi	0			0	0	0	0	0	0
Irrigation	6	20.0%	30.0%	4	5	5	5	5	5
Commercial/Industrial	0	20.0%	30.0%	0	0	0	0	0	0
Metcalf Energy Center*	1,224	0.0%	0.0%	1,224	1,224	1,224	1,224	1,224	1,224
Unspecified	6,900	20.0%	30.0%	4,830	5,520	5,520	5,520	5,520	5,520
TOTAL	8,130	13.3%	20.0%	6,058	6,749	6,749	6,749	6,749	6,749

* Includes potable and recycled water demand

Table 12a. Future Water Demand in Normal and Dry Years (CVSP Urban Area only), AFY

Customer type	Normal (2040)	Estimated Drought Reduction		Stage 4		Stage 2			
		Stage 2	Stage 4	Single dry	Multiple Dry	Year 2	Year 3	Multiple Dry	Year 4
Residence - Single	6,200	20.0%	30.0%	4,340		4,960	4,960		4,960
Residence - Multi Irrigation	1,613	20.0%	30.0%	1,129		1,290	1,290		1,290
Commercial/Industrial	1,473	20.0%	30.0%	1,031		1,178	1,178		1,178
Metcalf Energy Center*	3,002	20.0%	30.0%	2,101		2,402	2,402		2,402
	4,481	0.0%	0.0%	4,481		4,481	4,481		4,481
Unspecified	0	20.0%	30.0%	0		0	0		0
TOTAL	16,768	16.7%	25.0%	13,082		14,311	14,311		14,311

* Includes potable and recycled water demand

Table 12b. Future Water Demand in Normal and Dry Years (All Coyote Valley), AFY

Customer type	Normal (2040)	Estimated Drought Reduction		Stage 4		Stage 2			
		Stage 2	Stage 4	Single dry	Multiple Dry	Year 2	Year 3	Multiple Dry	Year 4
Residence - Single	7,261	20.0%	30.0%	5,082		5,809	5,809		5,809
Residence - Multi Irrigation	1,613	20.0%	30.0%	1,129		1,290	1,290		1,290
Commercial/Industrial	5,673	20.0%	30.0%	3,971		4,538	4,538		4,538
Metcalf Energy Center*	3,684	20.0%	30.0%	2,579		2,947	2,947		2,947
	4,481	0.0%	0.0%	4,481		4,481	4,481		4,481
Unspecified	0	20.0%	30.0%	0		0	0		0
TOTAL	22,711	16.7%	25.0%	17,242		19,065	19,065		19,065

* Includes potable and recycled water demand

Table 13. HMM Water Use Coefficients With and Without Conservation

Water Use Type	Unit	With Conservation		Without Conservation	
		GPD	AFY	GPD	AFY
Residential Indoor	per person	37	0.04	55	0.06
Workplace	per job	18.6	0.02	30	0.03
Outdoor	per acre	2345	2.60	4690	5.26

Table 14. Summary of HMM Water Use Estimates Based on Coefficients With and Without Conservation

	With Conservation					Without Conservation		Percent Difference	
	Indoor		Outdoor	Total Water Use		AFY			
	MGD	MGD	MGD	MGD					
CVSP Urban Area									
Residential	71,200	People	344.0	2.63	0.81	3.44	3,859	6,200	38%
Workplace	43,000	Jobs	67.0	0.80	0.16	0.96	1,073	1,799	40%
Mixed Use - Residential	8,500	People	207.0	0.31	0.49	0.80	897	1,613	44%
Mixed Use - Workplace	7,900	Jobs		0.15	0.00	0.15	165	266	38%
Schools	10,200	Students	62.0	0.19	0.15	0.34	376	669	44%
Jobs (retail, school, public facilities)	5,000	Jobs	19.0	0.09	0.04	0.14	154	268	42%
Parks and Publicly Irrigated Area (Right of ways, roads)			225.0	0.00	0.53	0.53	592	1,183	50%
Coyote Lake			55.0	0.00	0.13	0.13	145	289	50%
Subtotal				4.18	2.30	6.47	7,260	12,287	41%
Outside CVSP Urban Area									
Greenbelt						3.69	4,138	4,138	0%
Outside Planned Area						1.61	1,805	1,805	0%
Subtotal						9.10	5,943	5,943	0%
Metcalf Energy Center									
Metcalf Energy Center*						3.80	4,481	4,481	0%
Total				4.18	2.30	15.57	17,684	22,711	22%

* includes potable and recycled water demand, adjusted from HMM estimates based on SJMWS data

Table 15. Water Supply Sources and Total Available Supply with Capital Improvements

Supply	Entitlement	Right	Contract	Ever used	TOTAL AVAILABLE			Additional Capital Cost (Millions)
					Normal Year	Single Dry Year	Multiple Dry Years	
SCVWD-Treated Water*			x	yes**	9,520 ⁺	5,141 ⁺	7,102 ⁺	\$8.5
Groundwater*** - Total				yes	13,000	8,000	8,000	
Groundwater - Coyote (SJMWS wells)				yes	7,057	3,849	3,246	\$0.75 per well
Groundwater - Coyote (non-SJMWS wells)				yes	5,943	4,150	4,754	
Recycled Water - Industrial Uses ⁺⁺			x	yes	4,836	4,836	4,836	\$0
Recycled Water - Irrigation Uses				no	3,284	3,284	3,284	\$33
TOTAL					30,640	21,261	23,222	

*Includes excess treated water and additional treated water supplies diverted from Evergreen

**Evergreen receives imported water from SCVWD; Evergreen and Coyote are permitted as one water system

*** Total available supply assumes effective basin management and additional wells; groundwater reserves will be used during drought conditions

⁺Values based on historic reductions during droughts may not all be available to the Coyote Service area, SCVWD will work with SJMWS to provide the needed supply to meet demand during drought. This supply may be treated water, additional raw water for recharge, and/or recycled water

⁺⁺ Reflects the total demand for non-potable/non-irrigation water

Table 16. Estimated Recycled Water Demand

			Potential Demand for Recycled Water		
CVSP Development	ESTIMATED WATER USE (AFY)	HMH Estimates (AFY)	Non-potable Industrial Use (AFY)	Irrigation Water Use (AFY)	Potential Total Recycled Water Use (AFY)
Residential					
Low Density	153			76	
Medium Density	2,752			1376	
Medium-High Density	2,816			563	
High Density	1,046			209	
Mid-Rise	316			63	
Hi-Rise	100			20	
Mixed Use Residential	1,006			201	
TOTAL	8,190	7,813	0	2,433	2,433
Commercial / Industrial					
Restaurant	81		0	16	
Other Neighborhood	24		11	5	
Other Commercial	21		10	4	
Industrial	1,277		588	255	
Mixed Use Commercial/Industrial	644		0	129	
TOTAL	2,048	2,333	608	410	1,018
Schools					
Students		669	308		
TOTAL		669	308	0	308
Public Parks					
Public Parks	1,006		0	1,006	
TOTAL	1,006	1,473	0	1,006	1,006
CVSP Urban Area Total					
TOTAL	11,243	12,287	916	3,848	4,765
Metcalf Energy Center					
Potable	561	600	0		
Recycled	3,920	3,700	3,920		
TOTAL	4,481	4,300	3,920		3,920
GRAND TOTAL					
GRAND TOTAL	15,724	16,587	4,836	3,848	8,685

Table 17a. Past and Present Water Supply in a Normal Year (SJMWS Service Area Only), AFY

Water Supply Sources	1980	1985	1990	1995	2000	2005
SCVWD-Treated Water	0	0	0	0	0	0
Groundwater - Coyote (SJMWS wells)	0	0	50	55	61	349
Groundwater - Coyote (non-SJMWS wells)	0	0	0	0	0	0
Recycled Water - Industrial Uses	0	0	0	0	0	883
Recycled Water - Irrigation Uses	0	0	0	0	0	0
Total	0	0	50	55	61	1,232

Table 17b. Past and Present Water Supply in a Normal Year (All Coyote Valley), AFY

Water Supply Sources	2005
SCVWD-Treated Water	0
Groundwater - Coyote (SJMWS wells)	349
Groundwater - Coyote (non-SJMWS wells)*	6,900
Recycled Water - Industrial Uses	883
Recycled Water - Irrigation Uses	0
Total	8,132

*Estimated from SCVWD pumping records

Table 18. Current Supply Available by Source for Single-dry and Multiple-dry Years (SJMWS Service Area Only), AFY

Source	Normal*	Single Dry	Multiple Dry Years		
			2	3	4
SCVWD Imported Water	0	0	0	0	0
Groundwater - Coyote (SJMWS wells)	349	347	347	347	347
Recycled Water - Industrial Uses	883	883	883	883	883
Recycled Water - Irrigation Uses	0	0	0	0	0
TOTAL	1,232	1,230	1,230	1,230	1,230

Table 19. Comparison of Current Supply and Demand for Normal, Single-dry and Multiple-dry Years (SJMWS Service Area Only), AFY

Current Supply and Demand	Normal	Single Dry	Multiple Dry Years		
			2	3	4
Supply total	1,232	1,229.6	1,230.4	1,230.4	1,230.4
Demand total	1,232	1,229.6	1,230.4	1,230.4	1,230.4
Difference	0	0	0	0	0

Table S1-1. Future Water Demand in Normal and Dry Years at Buildout, Scenario 1 (CVSP Urban Area Only), AFY

Customer type	Normal (2040)	Estimated Drought Reduction		Stage 4		Stage 2	
		Stage 2	Stage 4	Single dry	Multiple Dry	Multiple Dry	Multiple Dry
Residence - Single	6,200	20.0%	30.0%	4,340	4,960	4,960	4,960
Residence - Multi	1,613	20.0%	30.0%	1,129	1,290	1,290	1,290
Irrigation	1,473	20.0%	30.0%	1,031	1,178	1,178	1,178
Commercial/Industrial	3,002	13.9%	20.8%	2,376	2,585	2,585	2,585
Metcalf Energy Center*	4,481	0.0%	0.0%	4,481	4,481	4,481	4,481
TOTAL	16,768	14.8%	22.2%	13,357	14,494	14,494	14,494

* Includes potable and recycled water demand

Table S1-2a. Future Water Supply in a Normal Year Scenario 1 (CVSP Urban Area Only), AFY

Water Supply Sources	2010	2015	2020	2025	2030	2035	2040
SCVWD-Imported Water	2,227	3,852	5,476	7,101	8,725	9,520	9,520
Groundwater - Coyote (SJMWS wells)	0	0	0	0	0	830	2,412
Groundwater - Coyote (non-SJMWS wells)	0	0	0	0	0	0	0
Recycled Water - Industrial Uses*	4,051	4,182	4,313	4,443	4,574	4,705	4,836
Recycled Water - Irrigation Uses	0	0	0	0	0	0	0
Total	6,278	8,034	9,789	11,544	13,299	15,055	16,768

*Industrial uses include the fully operational MEC and the linear implementation of other industrial uses

Table S1-2b. Future Water Supply in a Normal Year Scenario 1 (All Coyote Valley), AFY

Water Supply Sources	2010	2015	2020	2025	2030	2035	2040
SCVWD-Imported Water	2,227	3,852	5,476	7,101	8,725	9,520	9,520
Groundwater - Coyote (SJMWS wells)	0	0	0	0	0	830	2,412
Groundwater - Coyote (non-SJMWS wells)	5,943	5,943	5,943	5,943	5,943	5,943	5,943
Recycled Water - Industrial Uses*	4,051	4,182	4,313	4,443	4,574	4,705	4,836
Recycled Water - Irrigation Uses	0	0	0	0	0	0	0
Total	12,221	13,977	15,732	17,487	19,242	20,998	22,711

Table S1-3. Projected Supply Available by Source for Single-dry and Multiple-dry Years at Buildout, Scenario 1 (CVSP Urban Area Only), AFY

Source	Normal (2040)	Single Dry	Multiple Dry Years			
			2	3	4	
SCVWD Imported Water	9,520	4,680	6,412	6,412	6,412	
Groundwater - Coyote (SJMWS wells)	2,412	3,840	3,246	3,246	3,246	
Groundwater - Coyote (non-SJMWS wells)	0	0	0	0	0	
Recycled Water - Industrial Uses	4,836	4,836	4,836	4,836	4,836	
Recycled Water - Irrigation Uses	0	0	0	0	0	
TOTAL	16,768	13,356	14,494	14,494	14,494	

Table S1-4. Comparison of Projected Supply and Demand for Normal, Single-dry and Multiple-dry Years at Buildout, Scenario 1 (CVSP Urban Area Only), AFY

2040 Supply and Demand with Project	Normal	Single Dry	Multiple Dry Years			
			2	3	4	
Supply total	16,768	13,356	14,494	14,494	14,494	
Demand total	16,768	13,357	14,494	14,494	14,494	
Difference	0	0	0	0	0	

Table S2-1. Future Water Demand in Normal and Dry Years at Buildout, Scenario 2 (CVSP Urban Area Only), AFY

Customer type	Normal (2040)	Estimated Drought Reduction				Stage 4		Stage 2			
		Stage 2		Stage 4		Single dry		Multiple Dry		Multiple Dry	
		2015	2020	2015	2020	2025	2030	2025	2030	2025	2030
Residence - Single	6,200	13.6%	20.4%			4,938	5,358	5,358	5,358	5,358	5,358
Residence - Multi	1,613	13.6%	20.4%			1,284	1,394	1,394	1,394	1,394	1,394
Irrigation	1,473	0.0%	0.0%			1,473	1,473	1,473	1,473	1,473	1,473
Commercial/Industrial	3,002	13.2%	19.8%			2,407	2,605	2,605	2,605	2,605	2,605
Metcalf Energy Center*	4,481	0.0%	0.0%			4,481	4,481	4,481	4,481	4,481	4,481
TOTAL	16,768	8.1%	12.1%			14,582	15,311	15,311	15,311	15,311	15,311

* Includes potable and recycled water demand

Table S2-2a. Future Water Supply in a Normal Year, Scenario 2 (CVSP Urban Area Only), AFY

Water Supply Sources	2010	2015	2020	2025	2030	2035	2040
SCVWD-Imported Water	1,725	2,848	3,970	5,094	6,216	7,339	8,419
Groundwater - Coyote (SJMWS wells)	0	0	0	0	0	0	0
Groundwater - Coyote (non-SJMWS wells)	0	0	0	0	0	0	0
Recycled Water - Industrial Uses*	4,051	4,182	4,313	4,443	4,574	4,705	4,836
Recycled Water - Irrigation Uses	469	938	1,407	1,877	2,346	2,815	3,284
Total	6,245	7,968	9,690	11,414	13,136	14,859	16,539

*Industrial uses include the fully operational MEC and the linear implementation of other industrial uses

Table S2-2b. Future Water Supply in a Normal Year, Scenario 2 (All Coyote Valley), AFY

Water Supply Sources	2010	2015	2020	2025	2030	2035	2040
SCVWD-Imported Water	1,725	2,848	3,970	5,094	6,216	7,339	8,419
Groundwater - Coyote (SJMWS wells)	0	0	0	0	0	0	0
Groundwater - Coyote (non-SJMWS wells)	5,943	5,943	5,943	5,943	5,943	5,943	5,943
Recycled Water - Industrial Uses	4,051	4,182	4,313	4,443	4,574	4,705	4,836
Recycled Water - Irrigation Uses	469	938	1,407	1,877	2,346	2,815	3,284
Total	12,188	13,911	15,633	17,357	19,079	20,802	22,482

Table S2-3. Projected Supply Available by Source for Single-dry and Multiple-dry Years at Buildout, Scenario 2 (CVSP Urban Area Only), AFY

Source	Normal (2040)	Multiple Dry Years			
		Single Dry	2	3	4
SCVWD Imported Water	8,648	2,622	3,945	3,945	3,945
Groundwater - Coyote (SJMWS wells)	0	3,840	3,246	3,246	3,246
Groundwater - Coyote (non-SJMWS wells)	0	0	0	0	0
Recycled Water - Industrial Uses	4,836	4,836	4,836	4,836	4,836
Recycled Water - Irrigation Uses	3,284	3,284	3,284	3,284	3,284
TOTAL	16,768	14,582	15,311	15,311	15,311

Table S2-4. Comparison of Projected Supply and Demand for Normal, Single-dry and Multiple-dry Years at Buildout, Scenario 2 (CVSP Urban Area Only), AFY

2040 Supply and Demand with Project	Normal	Single Dry	Multiple Dry Years		
			2	3	4
Supply total	16,768	14,582	15,311	15,311	15,311
Demand total	16,768	14,582	15,311	15,311	15,311
Difference	0	0	0	0	0

Table S3-1. Future Water Demand in Normal and Dry Years at Buildout, Scenario 3 (CVSP Urban Area Only), AFY

Customer type	Normal (2040)	Estimated Drought Reduction		Stage 4		Stage 2	
		Stage 2	Stage 4	Single dry	Multiple Dry Year 2	Multiple Dry Year 3	Multiple Dry Year 4
		10.0%	15.0%	3,162	3,348	3,348	3,348
Residence - Single	3,720	10.0%	15.0%	823	871	871	871
Residence - Multi	968	10.0%	15.0%	626	663	663	663
Irrigation	736	10.0%	15.0%	1,519	1,608	1,608	1,608
Commercial/Industrial	1,787	10.0%	15.0%	4,481	4,481	4,481	4,481
Metcalf Energy Center*	4,481	0.0%	0.0%				
TOTAL	11,692	8.0%	12.0%	10,610	10,970	10,970	10,970

* Includes potable and recycled water demand

Table S3-2a. Future Water Supply in a Normal Year, Scenario 3 (CVSP Urban Area Only), AFY

Water Supply Sources	2010	2015	2020	2025	2030	2035	2040
SCVWD-Imported Water	1,502	2,401	3,300	4,200	5,099	5,998	6,856
Groundwater - Coyote (SJMWS wells)	0	0	0	0	0	0	0
Groundwater - Coyote (non-SJMWS wells)	0	0	0	0	0	0	0
Recycled Water - Industrial Uses*	4,051	4,182	4,313	4,443	4,574	4,705	4,836
Recycled Water - Irrigation Uses	0	0	0	0	0	0	0
Total	5,553	6,583	7,613	8,643	9,673	10,703	11,692

*Industrial uses include the fully operational MEC and the linear implementation of other industrial uses

Table S3-2b. Future Water Supply in a Normal Year, Scenario 3 (All Coyote Valley), AFY

Water Supply Sources	2010	2015	2020	2025	2030	2035	2040
SCVWD-Imported Water	1,502	2,401	3,300	4,200	5,099	5,998	6,856
Groundwater - Coyote (SJMWS wells)	0	0	0	0	0	0	0
Groundwater - Coyote (non-SJMWS wells)	5,943	5,943	5,943	5,943	5,943	5,943	5,943
Recycled Water - Industrial Uses	4,051	4,182	4,313	4,443	4,574	4,705	4,836
Recycled Water - Irrigation Uses	0	0	0	0	0	0	0
Total	11,496	12,526	13,556	14,586	15,616	16,646	17,635

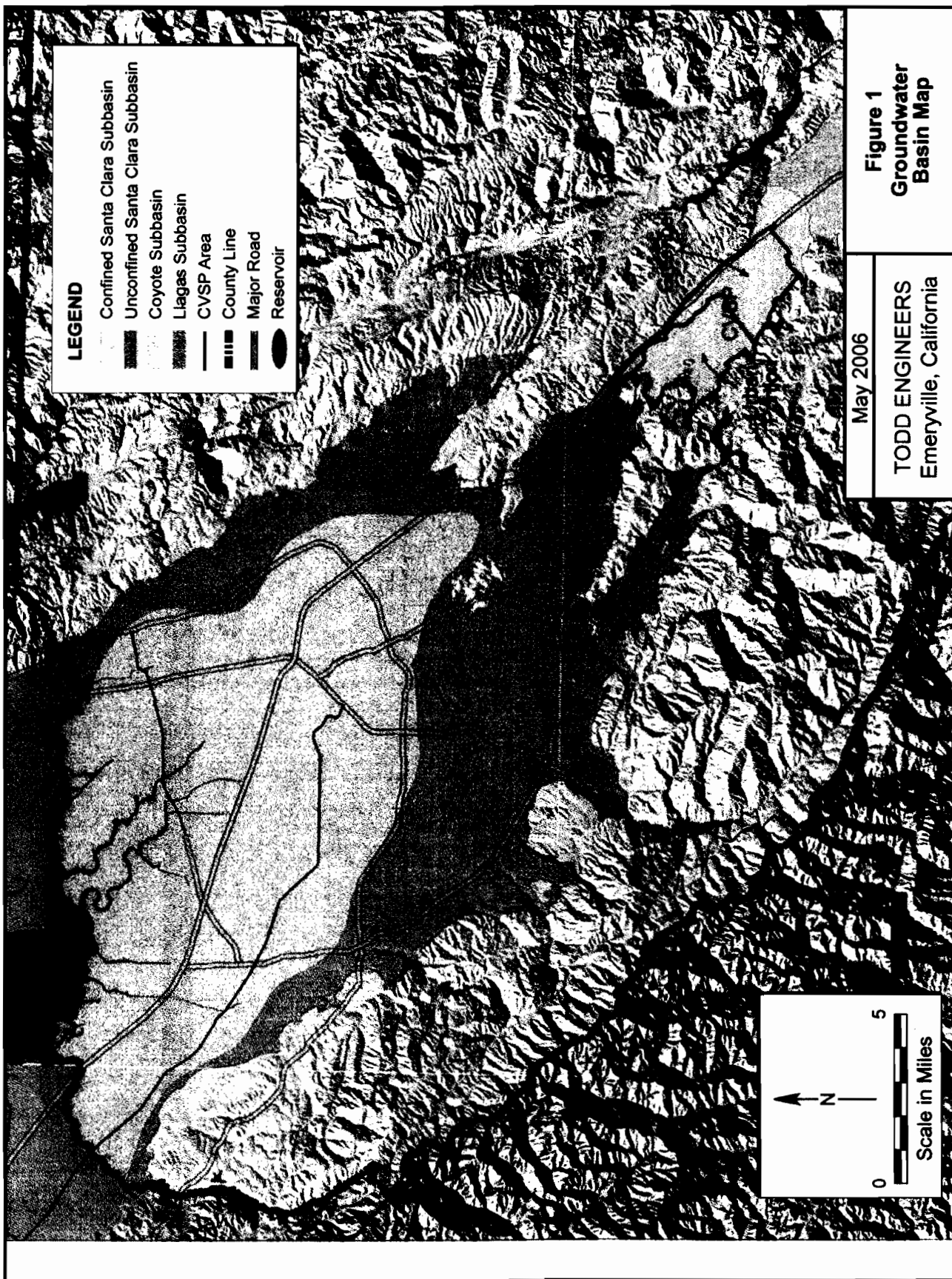
Table S3-3. Projected Supply Available by Source for Single-dry and Multiple-dry Years at Buildout, Scenario 3 (CVSP Urban Area Only), AFY

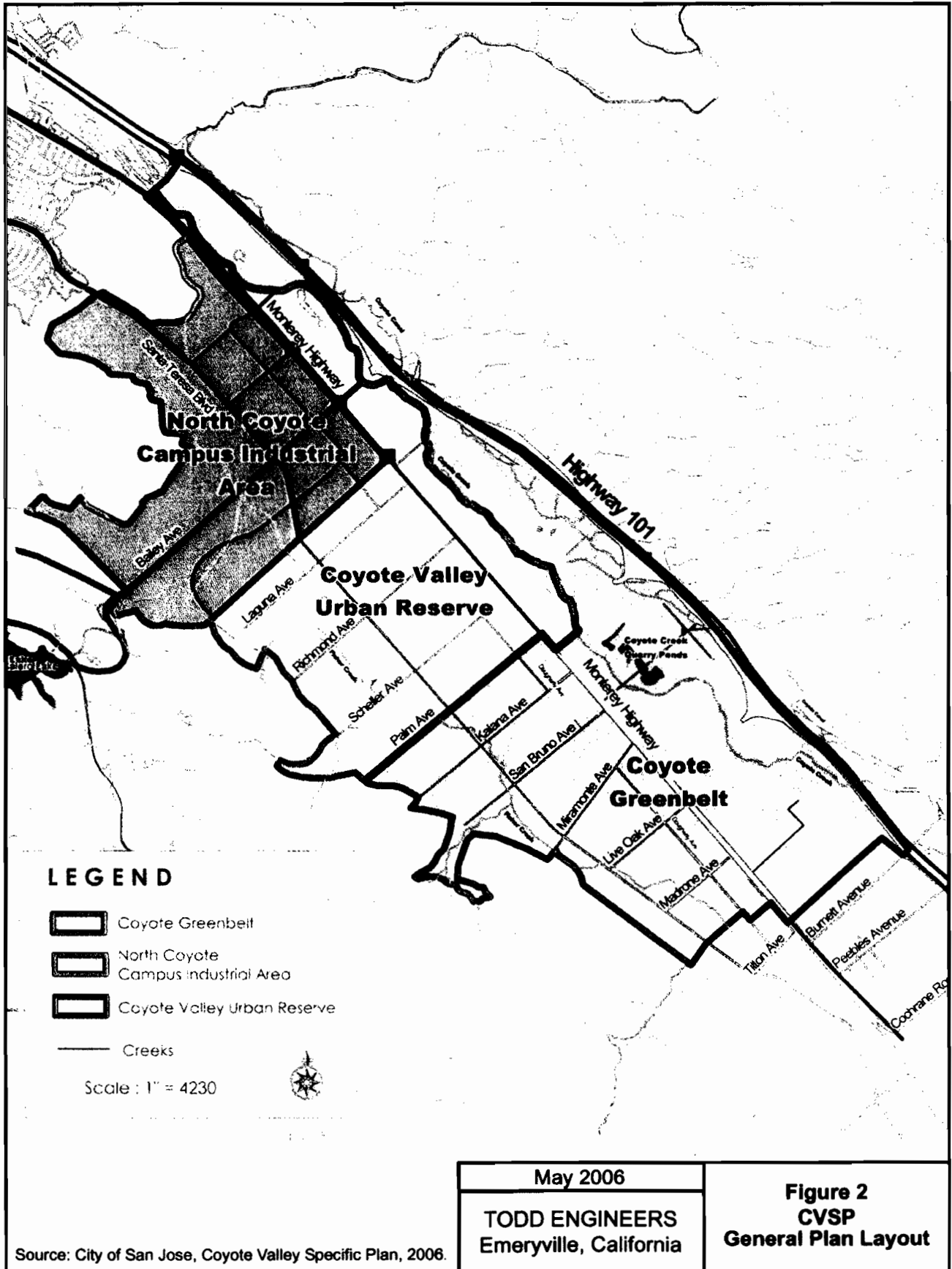
Source	Normal (2040)	Single Dry	Multiple Dry Years			
			2	3	4	
SCVWD Imported Water	6,856	1,934	2,889	2,889	2,889	
Groundwater - Coyote (SJMWS wells)	0	3,840	3,246	3,246	3,246	
Groundwater - Coyote (non-SJMWS wells)	0	0	0	0	0	
Recycled Water - Industrial Uses	4,836	4,836	4,836	4,836	4,836	
Recycled Water - Irrigation Uses	0	0	0	0	0	
TOTAL	11,692	10,610	10,970	10,970	10,970	

Table S3-4. Comparison of Projected Supply and Demand for Normal, Single-dry and Multiple-dry Years at Buildout, Scenario 3 (CVSP Urban Area Only), AFY

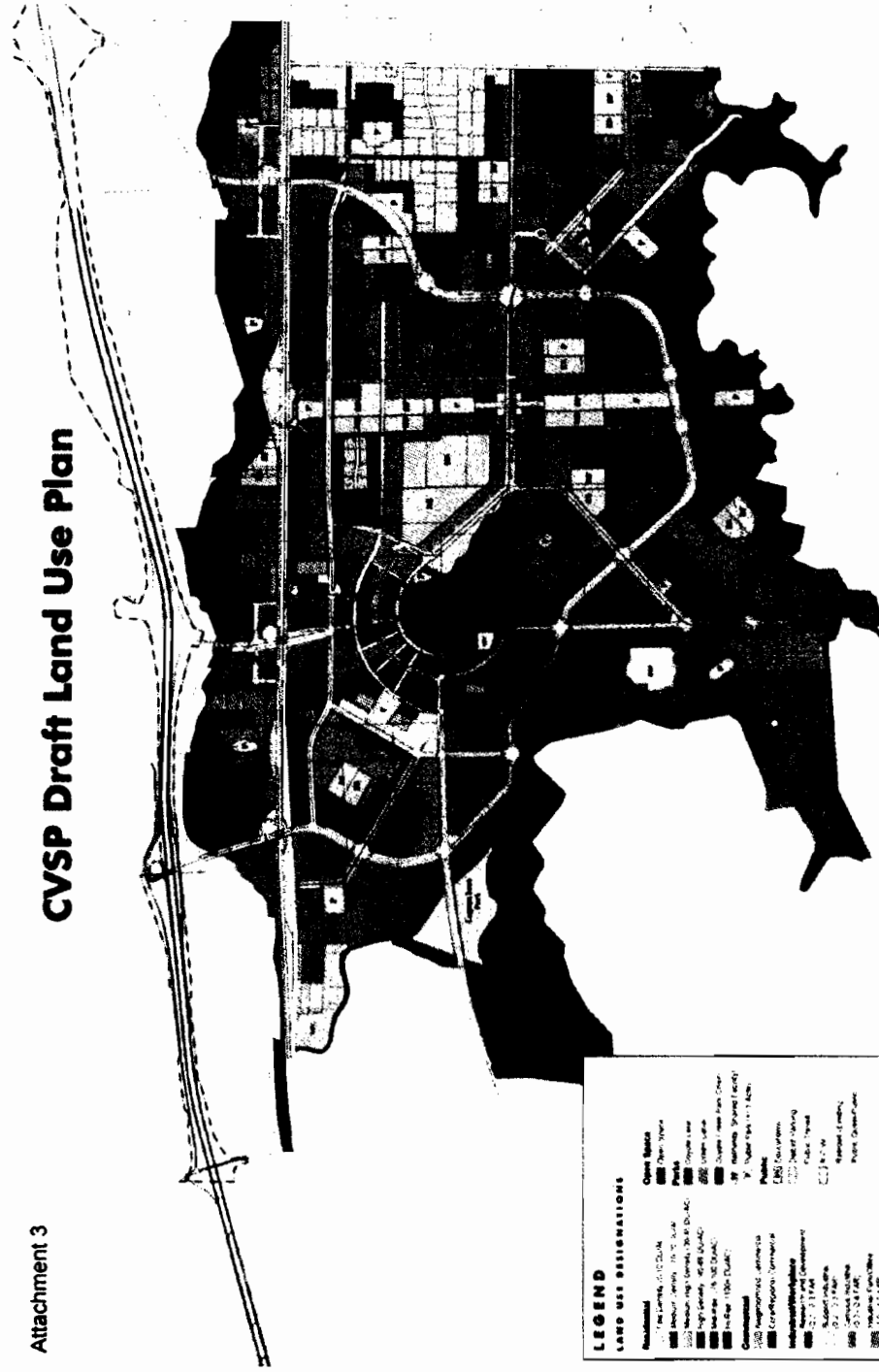
2040 Supply and Demand with Project	Normal	Single Dry	Multiple Dry Years			
			2	3	4	
Supply total	11,692	10,610	10,970	10,970	10,970	
Demand total	11,692	10,610	10,970	10,970	10,970	
Difference	0	0	0	0	0	

FIGURES





CVSP Draft Land Use Plan



LEGEND
LAND USE DESIGNATIONS

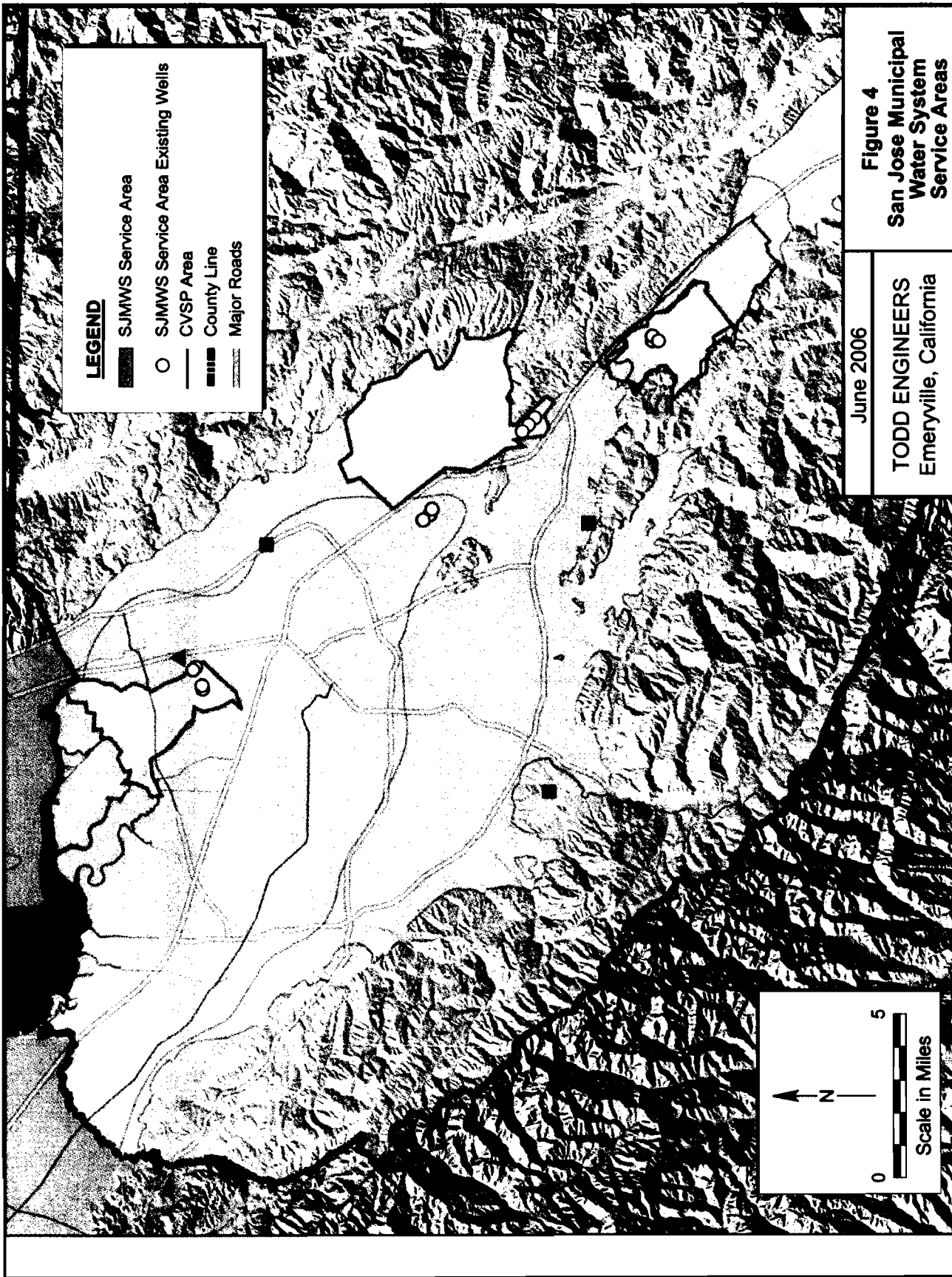
Residential	Open Space
100 Single-Family Detached (SFD)	200 Open Space
110 Single-Family Attached (SFA)	210 Open Space
120 Medium-Density Residential (MDR)	220 Open Space
130 High-Density Residential (HDR)	230 Open Space
140 Industrial (IND)	240 Open Space
150 Office (OFF)	250 Open Space
160 Retail (RET)	260 Open Space
170 Public (PUB)	270 Open Space
180 Community (COM)	280 Open Space
190 Other (OTH)	290 Open Space
200 Industrial (IND)	300 Open Space
210 Office (OFF)	310 Open Space
220 Retail (RET)	320 Open Space
230 Public (PUB)	330 Open Space
240 Community (COM)	340 Open Space
250 Other (OTH)	350 Open Space
260 Industrial (IND)	360 Open Space
270 Office (OFF)	370 Open Space
280 Retail (RET)	380 Open Space
290 Public (PUB)	390 Open Space
300 Community (COM)	400 Open Space
310 Other (OTH)	410 Open Space
320 Industrial (IND)	420 Open Space
330 Office (OFF)	430 Open Space
340 Retail (RET)	440 Open Space
350 Public (PUB)	450 Open Space
360 Community (COM)	460 Open Space
370 Other (OTH)	470 Open Space
380 Industrial (IND)	480 Open Space
390 Office (OFF)	490 Open Space
400 Retail (RET)	500 Open Space
410 Public (PUB)	510 Open Space
420 Community (COM)	520 Open Space
430 Other (OTH)	530 Open Space
440 Industrial (IND)	540 Open Space
450 Office (OFF)	550 Open Space
460 Retail (RET)	560 Open Space
470 Public (PUB)	570 Open Space
480 Community (COM)	580 Open Space
490 Other (OTH)	590 Open Space
500 Industrial (IND)	600 Open Space
510 Office (OFF)	610 Open Space
520 Retail (RET)	620 Open Space
530 Public (PUB)	630 Open Space
540 Community (COM)	640 Open Space
550 Other (OTH)	650 Open Space
560 Industrial (IND)	660 Open Space
570 Office (OFF)	670 Open Space
580 Retail (RET)	680 Open Space
590 Public (PUB)	690 Open Space
600 Community (COM)	700 Open Space
610 Other (OTH)	710 Open Space
620 Industrial (IND)	720 Open Space
630 Office (OFF)	730 Open Space
640 Retail (RET)	740 Open Space
650 Public (PUB)	750 Open Space
660 Community (COM)	760 Open Space
670 Other (OTH)	770 Open Space
680 Industrial (IND)	780 Open Space
690 Office (OFF)	790 Open Space
700 Retail (RET)	800 Open Space
710 Public (PUB)	810 Open Space
720 Community (COM)	820 Open Space
730 Other (OTH)	830 Open Space
740 Industrial (IND)	840 Open Space
750 Office (OFF)	850 Open Space
760 Retail (RET)	860 Open Space
770 Public (PUB)	870 Open Space
780 Community (COM)	880 Open Space
790 Other (OTH)	890 Open Space
800 Industrial (IND)	900 Open Space
810 Office (OFF)	910 Open Space
820 Retail (RET)	920 Open Space
830 Public (PUB)	930 Open Space
840 Community (COM)	940 Open Space
850 Other (OTH)	950 Open Space
860 Industrial (IND)	960 Open Space
870 Office (OFF)	970 Open Space
880 Retail (RET)	980 Open Space
890 Public (PUB)	990 Open Space
900 Community (COM)	1000 Open Space



May 2006

Figure 3
Proposed Land Use,
Campus Industrial Area
and Urban Reserve

TODD ENGINEERS
Emeryville, California



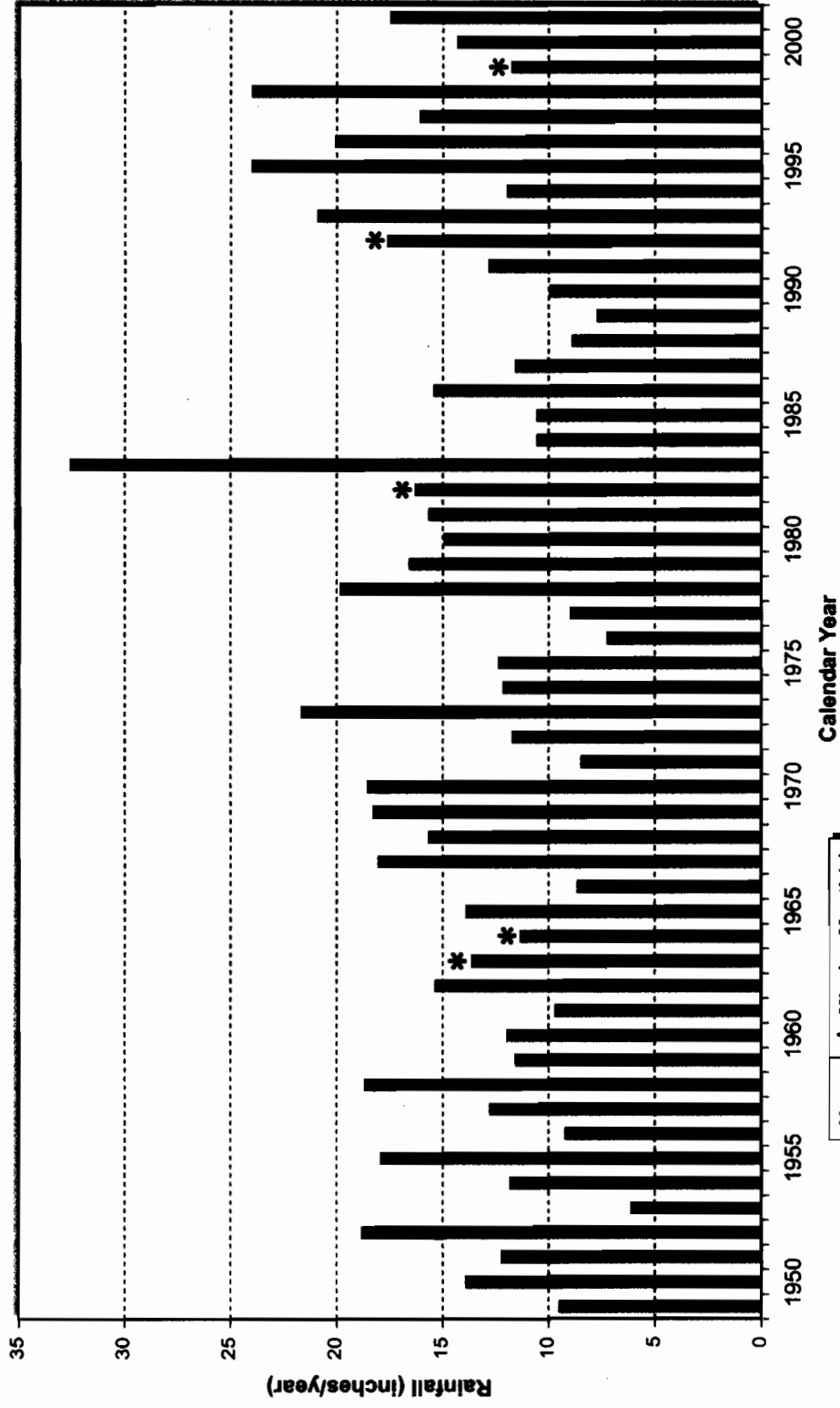
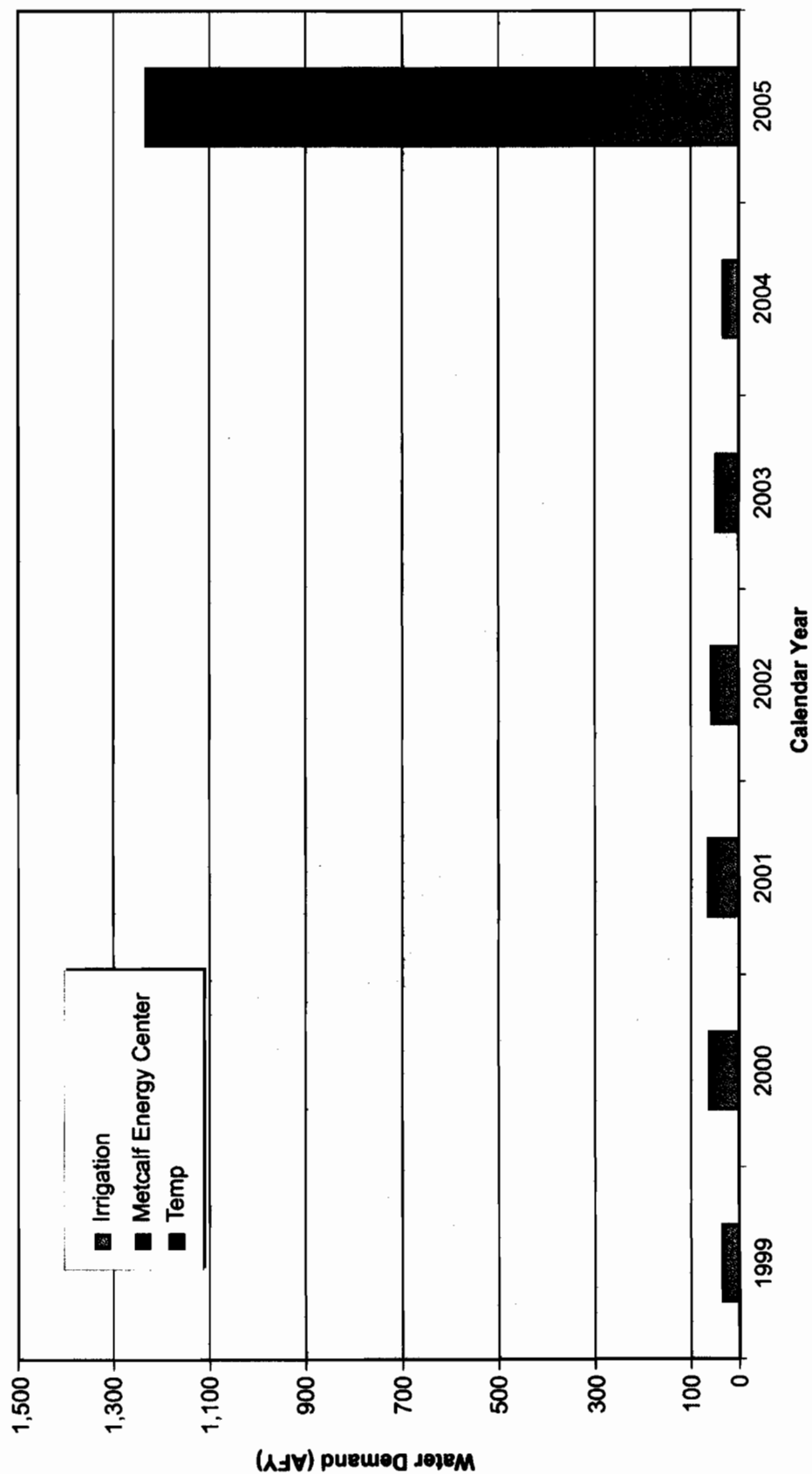


Figure 5
Annual Precipitation,
San Jose

October 2005

TODD ENGINEERS
 Emeryville, California

Source: NOAA NCDC Summary of the Day, 2002.



May 2006

Figure 6
SJMWS Coyote
Service Area Water
Demand, 1999 - 2004

TODD ENGINEERS
 Emeryville, California

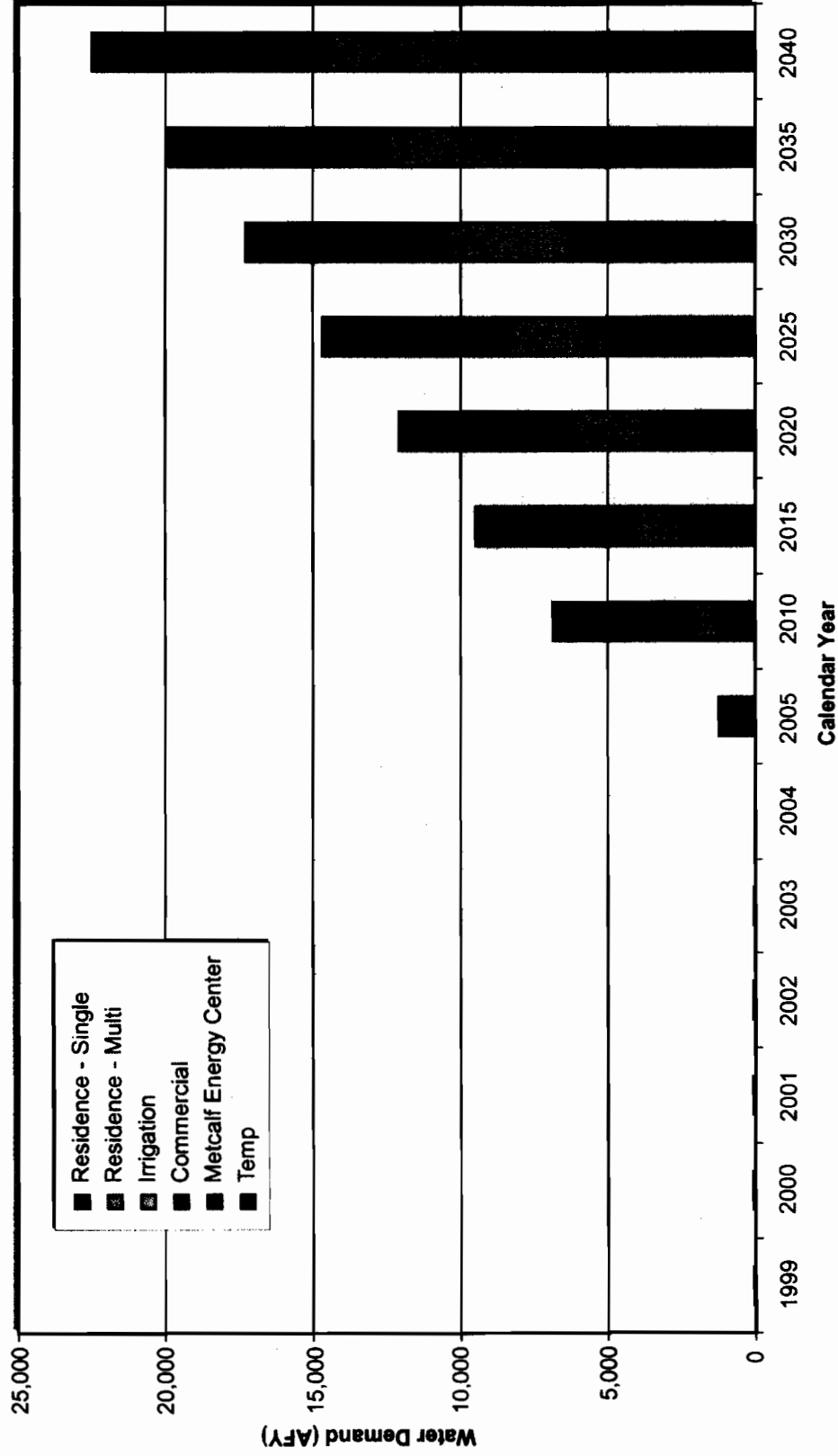


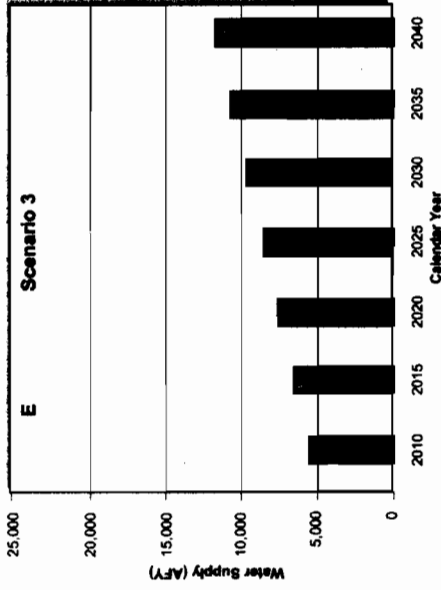
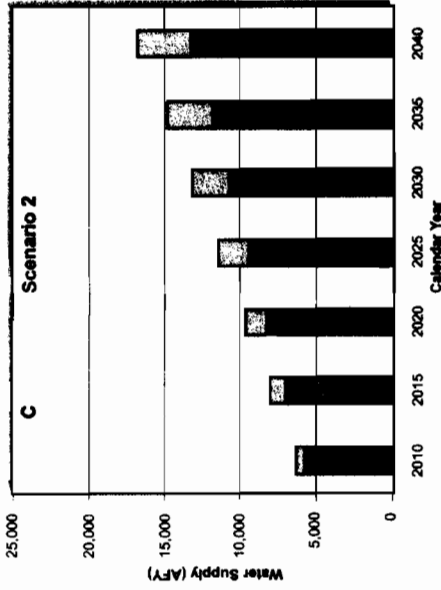
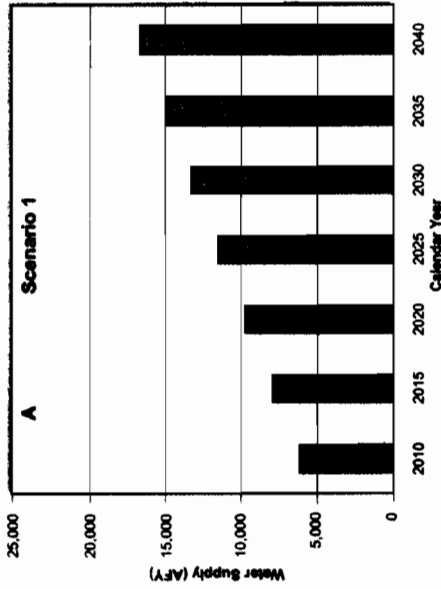
Figure 7
Current and Projected
Water Demand

May 2006

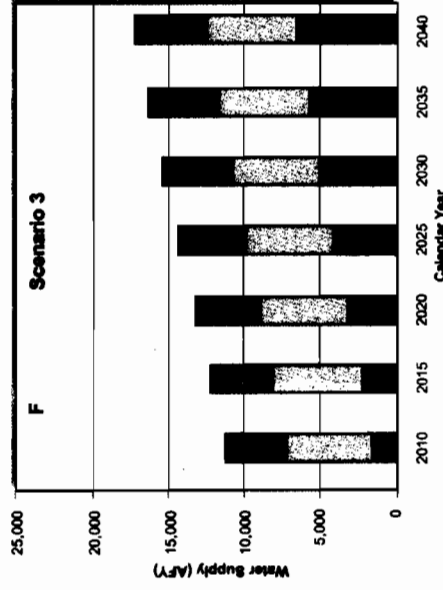
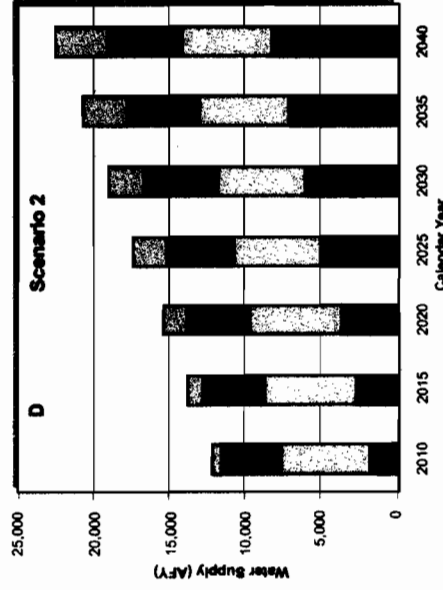
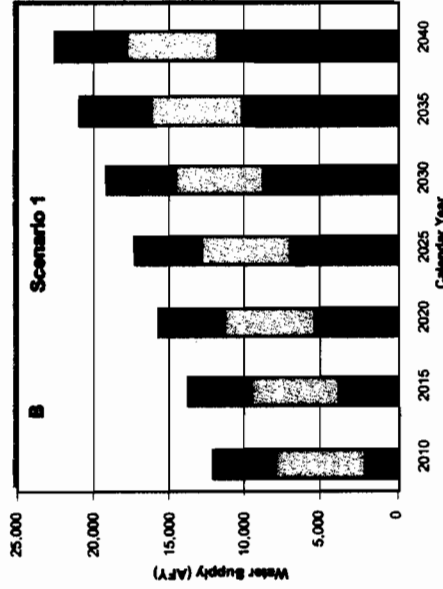
TODD ENGINEERS
 Emeryville, California



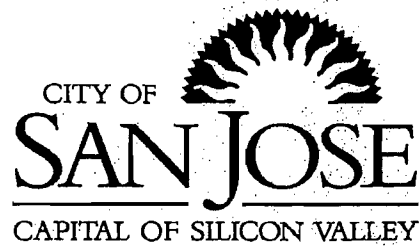
CVSP URBAN AREA



ALL COYOTE VALLEY



- Recycled Water - Irrigation Uses
- Recycled Water - Industrial Uses
- Groundwater - Coyote non-SUMWS Wells
- Groundwater - Coyote SUMWS Wells
- SCVWD-Imported Water



Water Supply Assessment
for
Coyote Valley Specific Plan

May 2006

APPENDIX A

Prepared for
CITY OF SAN JOSÉ
MUNICIPAL WATER SYSTEM
ENVIRONMENTAL SERVICES DEPARTMENT

Prepared by
Todd Engineers
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Emeryville, California 94608
510-595-2120 / Fax 510-595-2112
toddengineers.com

Chapter 15.10
WATER WASTE PREVENTION AND
WATER SHORTAGE MEASURES

Parts:

- 1 General Provisions
- 2 Water Waste Prevention
- 3 Water Shortage Measures
- 4 Water Management

Part 1
GENERAL PROVISIONS

Sections:

- 15.10.010 Purpose.
- 15.10.020 Definitions.
- 15.10.030 Potable water.
- 15.10.040 Gray water.
- 15.10.050 Reclaimed water.
- 15.10.060 Water from dewatering operations.
- 15.10.070 Syringing.
- 15.10.080 Landscape irrigation audit.
- 15.10.090 Automatic positive self-closing valve.
- 15.10.095 Director.

15.10.010 Purpose.

The city of San José is dedicated to long-term water conservation to address the chronic water shortage, to protect the aquifers of the city, and to prevent land surface subsidence. Moreover, the city is subject to periodic droughts, a circumstance which requires the city council to take steps to protect the health, safety and general welfare of the public. (Ord. 24600.)

15.10.020 Definitions.

The definitions set forth in this part shall govern the application and interpretation of this chapter. (Ord. 24600.)

15.10.030 Potable water.

A. "Potable water" means water of a quality which meets California Department of Health Services and San Francisco Bay Regional Water Quality Control Board requirements for water suitable for human consumption.

B. "Potable water" does not include bottled drinking water; reclaimed water; recycled or so-called "gray water"; water brought into the County of Santa Clara by truck; water from dewatering operations; water pollution control plant effluent; or water pumped for remediation purposes pursuant to a permit from the Santa Clara Valley Water District or the San Francisco Bay Regional Water Quality Control Board. (Ord. 24600.)

15.10.040 Gray water.

"Gray water" means water which is collected and recycled or reused after its original use. (Ord. 24600.)

15.10.050 Reclaimed water.

"Reclaimed water" means water which, as a result of treatment of domestic wastewater, or groundwater cleanup discharge, is suitable for direct beneficial use or a controlled use that would not otherwise occur. (Ord. 24600.)

15.10.060 Water from dewatering operations.

"Water from dewatering operations" means water which is extracted from the ground or a sump to prevent the flooding of a building, structure, or excavation. (Ord. 24600.)

15.10.070 Syringing.

"Syringing" means the watering of golf course greens, golf course tees, lawn bowling greens, or tennis greens, for a period not to exceed ten minutes per hour. (Ord. 24600.)

15.10.080 Landscape irrigation audit.

"Landscape irrigation audit" means a process to perform site inspections, evaluate irrigation systems, and develop efficient irrigation schedules. (Ord. 24600.)

15.10.090 Automatic positive self-closing valve.

"Automatic positive self-closing valve" is a valve that requires a person using a hose to apply and maintain pressure at the outlet end of the hose to activate the flow of water. (Ord. 24600.)

15.10.095 Director.

Except as otherwise explicitly stated, "director" means the director of the environmental services department. (Ord. 24600.)

**Part 2
WATER WASTE PREVENTION**

Sections:

<u>15.10.200</u>	Water waste prevention.
<u>15.10.210</u>	Repair of plumbing, sprinkler and irrigation systems.
<u>15.10.220</u>	Water run-off prohibited.
<u>15.10.230</u>	Restaurants, banquet facilities, hotels and dining facilities.
<u>15.10.240</u>	Cleaning of structures and surfaces.
<u>15.10.250</u>	Washing of vehicles.
<u>15.10.255</u>	Commercial car washes.
<u>15.10.260</u>	Building and construction.
<u>15.10.270</u>	Hydrants.
<u>15.10.290</u>	Landscape irrigation.
<u>15.10.295</u>	Use of reclaimed water.

15.10.200 Water waste prevention.

A. The regulations in this part are intended to be permanent water conservation measures and to apply to the use of water from all sources on an on-going basis.

- B. No person shall waste water from any source nor shall any person allow such water wastage.
- C. No person shall use any water from any source, or continue the use of any water from any source, in any way prohibited by this chapter. (Ord. 24600.)

15.10.210 Repair of plumbing, sprinkler and irrigation systems.

- A. No owner or manager or other person responsible for the day-to-day operation of any premises shall fail to initiate repair of any leaking, broken or defective water pipes, faucets, plumbing fixtures, other water service appliances, sprinklers, watering or irrigation systems within five (5) working days after the owner, manager or other responsible person knew or should have known of such leaks, breaks or defects.
- B. No owner or manager or other person responsible for the day-to-day operation of any premises shall fail to complete repair of any leaking, broken or defective water pipes, faucets, plumbing fixtures, other water service appliances, sprinklers, watering or irrigation systems, as soon as practical after initiation of such repair. (Ord. 24600.)

15.10.220 Water run-off prohibited.

- A. No person shall use any water in any manner which results in run-off onto sidewalks, driveways, gutters or streets, except for water used in accordance with Sections 15.10.240 or 15.10.250.
- B. No person shall use any water in any manner which results in run-off beyond the immediate area of use, or the pooling or puddling of water, except for water used in accordance with Sections 15.10.240 or 15.10.250. (Ord. 24600.)

15.10.230 Restaurants, banquet facilities, hotels and dining facilities.

No person shall provide any water to any customer at any restaurant, banquet facility, hotel or commercial dining facility unless and until the customer requests water. (Ord. 24600.)

15.10.240 Cleaning of structures and surfaces.

No person shall use water through a hose to clean the exterior of any building or any structure or to clean sidewalks, driveways, patios, decks, tennis courts, parking lots or any other exterior paved or hard-surfaced areas, unless such hose is equipped with an automatic positive self-closing valve. (Ord. 24600.)

15.10.250 Washing of vehicles.

No person shall use any water through a hose to wash any car, truck, boat, trailer, bus, recreational vehicle, camper, or any other vehicle, or any portion thereof, unless such hose is equipped with an automatic positive self-closing valve. (Ord. 24600.)

15.10.255 Commercial car washes.

No owner, manager or employee of a commercial car wash facility shall use any water to wash, or allow or permit the use of any water to wash, any car, truck, boat, trailer, bus, recreation vehicle, camper or any other vehicle, or any portion thereof, except if such person can demonstrate that such washing is exclusively by one of the following methods:

- A. Use of mechanical automatic car wash facilities utilizing water recycling equipment.
- B. Use of a bucket and handwashing.
- C. Use of a hose equipped with an automatic positive self-closing valve. (Ord. 24600.)

15.10.260 Building and construction.

No person shall use, permit or allow the use of potable water for building or construction purposes, such as consolidation of backfill or dust control, without a prior approved written exception from the city. (Ord. 24600.)

15.10.270 Hydrants.

No person, except a water company for the purpose of necessary hydrant or water distribution system maintenance, or under the direction of the city's fire chief for firefighting or fire sprinkler maintenance, shall use, permit or allow the use of any water or flushing of any water from any fire hydrant, without a prior approved written exception from the city. (Ord. 24600.)

15.10.290 Landscape irrigation.

A. No person shall use, permit or allow the use of potable water to irrigate any outdoor landscaping at any time between the hours of 8:00 a.m. and 6:00 p.m. during Pacific Daylight Savings Time, or between the hours of 10:00 a.m. and 3:00 p.m. during Pacific Standard Time, unless the person using or allowing the use of the water is using a bucket, hand-carried container, or a hose equipped with an automatic positive self-closing valve.

B. The restrictions on landscape irrigation contained in this section do not apply to the following activities:

1. Syringing of golf course greens, golf course tees, lawn bowling greens or lawn tennis courts;
2. The conduct of a landscape water management audit to provide for the evaluation and adjustment of a landscape irrigation system. (Ord. 24600.)

15.10.295 Use of reclaimed water.

No person shall use, permit or allow the use of potable water to irrigate any outdoor landscaping, where an irrigation system has been installed to allow for use of reclaimed water and reclaimed water is available to the property for irrigation use. (Ord. 24600.)

**Part 3
WATER SHORTAGE MEASURES**

Sections:

- 15.10.300 Water shortage measures.
- 15.10.310 Landscape irrigation restrictions.
- 15.10.320 Restaurants.
- 15.10.325 Hotels, motels and other lodgings.
- 15.10.330 Public restrooms.
- 15.10.340 Cleaning of structures and surfaces.

<u>15.10.350</u>	Operation of decorative fountains.
<u>15.10.360</u>	New landscape installation.
<u>15.10.365</u>	Hydrants.
<u>15.10.370</u>	Prohibition on landscape irrigation.
<u>15.10.375</u>	Filling pools, spas and fountains.
<u>15.10.380</u>	Exception requests.
<u>15.10.390</u>	Fee for placards.

15.10.300 Water shortage measures.

A. The city council may, by resolution, declare a state of water shortage whenever it finds that water supplies are expected to be inadequate to meet at least ninety percent of projected water demand, or whenever a minimum conservation level of ten percent or more has been established by the Santa Clara Valley Water District.

B. In adopting such a resolution, the city council may declare whether the water shortage is a ten percent shortage; a twenty percent shortage; a thirty percent shortage; or a forty percent shortage. In the event that a water shortage resolution adopted by the city council fails to declare the level of water shortage, the resolution shall be deemed to be a resolution of a ten percent water shortage.

C. In addition to the requirements of Part 2 of this chapter, the provisions of this Part 3 shall apply to all uses of water for such period of time as a water shortage resolution adopted by the council remains in effect. (Ord. 24600.)

15.10.310 Landscape irrigation restrictions.

A. After adoption by the city council of a resolution declaring a ten percent or greater water shortage, it shall be unlawful for any person to use or allow the use of potable water to irrigate any outdoor landscaping at any time between the hours of 8:00 a.m. and 6:00 p.m. during Pacific Daylight Savings Time, or between the hours of 10:00 a.m. and 3:00 p.m. during Pacific Standard Time, except for the purpose of syringing of golf course greens, golf course tees, lawn bowling greens or lawn tennis courts.

B. After adoption by the city council of a resolution declaring a thirty percent or greater water shortage, it shall be unlawful for any person to use or allow the use of potable water to irrigate any landscaping, except for the purpose of syringing golf course greens, or golf course tees, lawn bowling greens or lawn tennis courts.

C. The restrictions on landscape irrigation contained in subsections A. and B. above do not apply to the use of water for the purpose of conducting a landscape water management audit to provide for the evaluation and adjustment of a landscape irrigation system. (Ord. 24600.)

15.10.320 Restaurants.

Upon adoption by the city council of a resolution declaring a twenty percent or greater water shortage, the owner and manager of every restaurant, banquet facility or dining facility shall display "NOTICE OF WATER SHORTAGE" information in conspicuous places upon such premises, including every restroom. The information shall be conveyed by placard, menu message, decal or other form approved or provided by the director. (Ord. 24600.)

15.10.400 Landscape irrigation audit required.

The owner of any property that is subject to the requirements of Chapter 15.11 of this code, and any owner of property having a landscaped area (as defined in Section 15.11.126) of one acre or more, including golf courses, green belts, common areas, multifamily housing, schools, businesses, parks, cemeteries, and publicly owned landscapes, shall cause a landscape irrigation audit of the property to be performed at least every five years. (Ord. 24600.)

15.10.410 Certificate in lieu of landscape irrigation audit.

A. If a landscaped area is using no more than twenty-two and one-half gallons of water per year per square foot, in lieu of an audit, the owner of the property may file a certificate, under penalty of perjury, stating that the area is using no more than twenty-two and one-half gallons of water per square foot per year.

B. The certificate shall be supported by a calculation of the average annual water usage for the area, based on water bills, covering at least one year, and no more than five years, immediately preceding the date on which a landscape irrigation audit would otherwise be due. (Ord. 24600.)

15.10.420 Format and filing of audits and certificates.

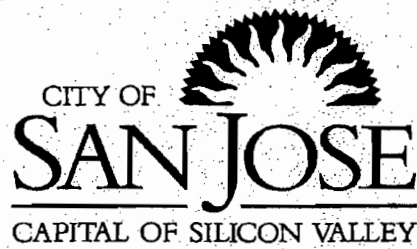
Landscape irrigation audits and certificates shall be filed with the director. The form of the audit and certificate and the information and data to be provided thereby shall be as prescribed by the director. (Ord. 24600.)

15.10.430 Due date for audits and certificates.

A. For landscaped areas in existence on January 1, 1993, landscape irrigation audits shall be due on June 1, 1998, and every five years thereafter.

B. For landscaped areas installed after January 1, 1993, audits shall be due sixty-six months after installation of the landscaped area, and every five years thereafter. (Ord. 24600.)

Bottom of Form



Water Supply Assessment
for
Coyote Valley Specific Plan

May 2006

APPENDIX B

Prepared for
CITY OF SAN JOSÉ
MUNICIPAL WATER SYSTEM
ENVIRONMENTAL SERVICES DEPARTMENT

Prepared by
Todd Engineers
2200 Powell Street, Suite 225
Emeryville, California 94608
510-595-2120 / Fax 510-595-2112
toddengineers.com

ORDINANCE NO. 89-1

PROVIDING FOR THE REGULATION OF GROUNDWATER EXTRACTION
WITHIN SANTA CLARA VALLEY WATER DISTRICT

The Board of Directors of Santa Clara Valley Water District do hereby enact as follows:

ARTICLE I

Sec. 1. Pursuant to grant of authority by the Santa Clara Valley Water District Act of the State of California, the Board of Directors, in order to conserve water for present and future use within the District, to prevent damaging diminution in the subterranean supply of water useful and of common benefit to the lands and people of the District, and in particular to prevent the occurrence of land surface subsidence and other permanently injurious consequences of groundwater overdraft in periods of drought, the following rules shall be in force from and after the effective date of this Ordinance.

ARTICLE II

Sec. 1. To establish a program of regulation of groundwater extraction, the Board of Directors shall adopt a Resolution specifying its intention to undertake such a program, describing the same with reasonable particularity, together with the perceived ground or grounds requiring its imposition, and fixing a time and place for public hearing thereof. Notice shall be given by publication of said resolution pursuant to Section 6061 of the Government Code in a newspaper of general circulation in the District. The publication of said notice shall be at least seven days before said hearing. Said resolution shall designate at least one public place where a copy or copies of the program of regulation may be seen by any interested person. The copy or copies shall be so available at least one week prior to said hearing.

ARTICLE III

Sec. 1. At the time and place fixed for said hearing or at any time to which said hearing may be continued, the Board must receive and make a record of substantial evidence tending to show that the underlying source of groundwater of the District is immediately endangered and that regulation in the form, manner and degree and for the period proposed is necessary to avoid permanent damage thereto in the form of diminution, contamination, pollution or compaction of the soils of said underlying source of groundwater.

Sec. 2. At said hearing, or at any time to which said hearing may be continued, the Board shall consider all written and oral objections to the proposed program. Upon the conclusion of the hearing and upon the basis thereof and not otherwise, the Board may abandon the proposed program or adopt the same.

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ARTICLE IV

Sec. 1. A program of regulation of groundwater extraction shall not be adopted except upon a formal finding by the Board that a source of groundwater of the inhabitants of the District is in immediate danger as aforesaid and such a program shall not extend beyond five (5) years from its effective date unless reenacted upon the same proceedings, including notice and public hearing, as specified herein. Such a program may include authority to require a license to (a) use all water wells and/or (b) construct any new water well; to require reporting to the District of water well production; and to control and suspend groundwater extractions at a designated point or points to the extent reasonably calculated and appropriate to meet or reduce the danger so found.

ARTICLE V

Sec. 1. Any program adopted pursuant to this Ordinance is effective upon adoption. Within ten days after its adoption, the program shall be published pursuant to Section 6061 of the Government Code in full in a newspaper of general circulation which is printed, published and circulated in the District.

ARTICLE VI

Sec. 1. From and after the publication of a program pursuant to this Ordinance, violation of a requirement of the program of regulation adopted pursuant to this Ordinance is a misdemeanor pursuant to Section 9 of the Santa Clara Valley Water District Act.

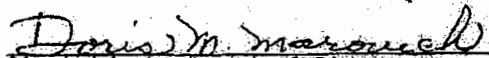
PASSED AND ADOPTED by the Board of Directors of Santa Clara Valley Water District on February 21, 1989, by the following vote:

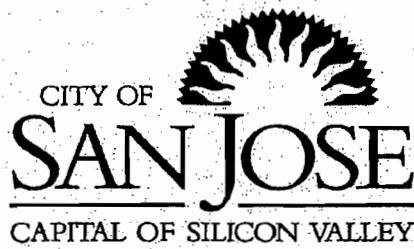
AYES: Directors J. Donohue P. T. Ferraro R. W. Gross J. Judge
J. L. Lenihan J. Pandit S. Sanchez
NOES: Directors S. Sanchez
ABSENT: Directors J. Donohue

SANTA CLARA VALLEY WATER DISTRICT

By: 
Chairman of the Board of Directors

ATTEST: SUSAN A. PINO


Clerk of the Board of Directors
Pro Tem



Water Supply Assessment
for
Coyote Valley Specific Plan

May 2006

APPENDIX C

Prepared for
CITY OF SAN JOSÉ
MUNICIPAL WATER SYSTEM
ENVIRONMENTAL SERVICES DEPARTMENT

Prepared by
Todd Engineers
2200 Powell Street, Suite 225
Emeryville, California 94608
510-595-2120 / Fax 510-595-2112
toddengineers.com

1-25-94
62(8)

Agmt. No. A0468b

**SECOND AMENDMENT TO THE CONTRACT BETWEEN
SANTA CLARA VALLEY WATER DISTRICT AND
CITY OF SAN JOSE FOR A
SUPPLY OF TREATED WATER**

THIS SECOND AMENDMENT to that certain contract is made and entered into as of
MAR 2 ~~1994~~ 1994, by and between the SANTA CLARA VALLEY WATER
DISTRICT, hereinafter referred to as "District" and the CITY OF SAN JOSE, hereinafter
referred to as "Contractor."

RECITALS

WHEREAS, District and Contractor entered into a contract on January 27, 1981, entitled
"Contract between Santa Clara Valley Water District and City of San Jose for a supply of
Treated Water," hereinafter called "Contract" and amended the Contract on May 14,
1985; and

WHEREAS, the District and Contractor desire to amend the Contract to assign ownership
and to provide for a jointly operated and maintained water delivery structure;

NOW, THEREFORE, District and Contractor agree to amend the Contract as follows:

1. ARTICLE B, "WATER SERVICE PROVISIONS," Section 3, "Delivery Structures" of
the Contract is hereby amended to add a new sub-section c) as follows:

"c) EXCEPTION TO SILVER CREEK TURNOUT STRUCTURE:

Water delivered to the Contractor pursuant to this Contract through the Silver
Creek Turnout shall be provided from District facilities through a delivery structure
operated and maintained jointly by the District and Contractor. The delivery
structure was designed, constructed, and placed in service by the Contractor as of
November 10, 1992. District shall pay for the automated controls and reporting
systems (telemetry). The Contractor paid for cost of the land, acquiring and
installing the measuring devices, the vault, the flow regulating devices, electrical
and power system, and all conduit and cabinetry of said structure as said devices
and facilities as shown on Exhibit D attached hereto and by this reference made a
part hereof.

District shall operate and maintain District's automated controls and reporting
systems (telemetry), flow meter measuring device, motorized flow control valve,
and all pipe main upstream of the flow control valve. District shall maintain sumps
and sump pump.

All other structures, equipment and piping shall be operated and maintained by the
Contractor including but not limited to:

The vault structure, pipe main downstream of flow control valve, pressure reducing valve, fluoride system, eyewash station, Contractor's telemetry, instrumentation, electrical and power system, security alarms, door entrances, landscaping and fences.

The cost of electrical power service to the turnout site shall be paid for by the Contractor.

Title to the piping upstream of the flow control valve, the District's telemetry reporting system and associated cabinetry, and the flow meter measuring device and motorized flow control valve shall be in the District and Contractor shall have no obligations or responsibilities with respect thereto and shall be under no obligation to operate, maintain, repair, replace or relocate the same.

Title to the delivery structure and piping downstream of the flow control valve and all appurtenances and facilities not specifically identified herein as held by the District shall be in the Contractor and the District shall have no obligations or responsibilities with respect thereto and shall be under no obligation to operate, maintain, repair, replace or relocate the same.

Contractor shall provide District with access to delivery structure and other facilities at all times for District operation, maintenance, repair, replacement or relocation of District facilities.

District reserves the right to perform emergency repairs on the vault structure, door entrance or other Contractor facilities should the Contractor be unable to perform maintenance or repairs of Contractor facilities as required for the operation, maintenance and security of District's facilities."

2. ALL OTHER TERMS and conditions of the original Contract and previous Amendment, except those specifically amended herein, shall remain in full force and effect.

IN WITNESS WHEREOF, District has caused this Second Amendment to the Contract to be executed by the Chairman of its Board of Directors and caused its Official Seal to be hereunto affixed and Contractor has caused these presents to be executed on

MAR 29 1994, by its duly authorized officer.

SANTA CLARA VALLEY WATER DISTRICT
("District")

By /S/ JAMES J. LENIHAN
Chairman of the Board of Directors

Approved as to form:

By _____
General Counsel, Santa Clara Valley
Water District

CITY OF SAN JOSE ("Contractor")

By Patricia L. O'Hearn
City Clerk
Patricia L. O'Hearn

Approved as to form:

By Catherine Boyra
Deputy City Attorney

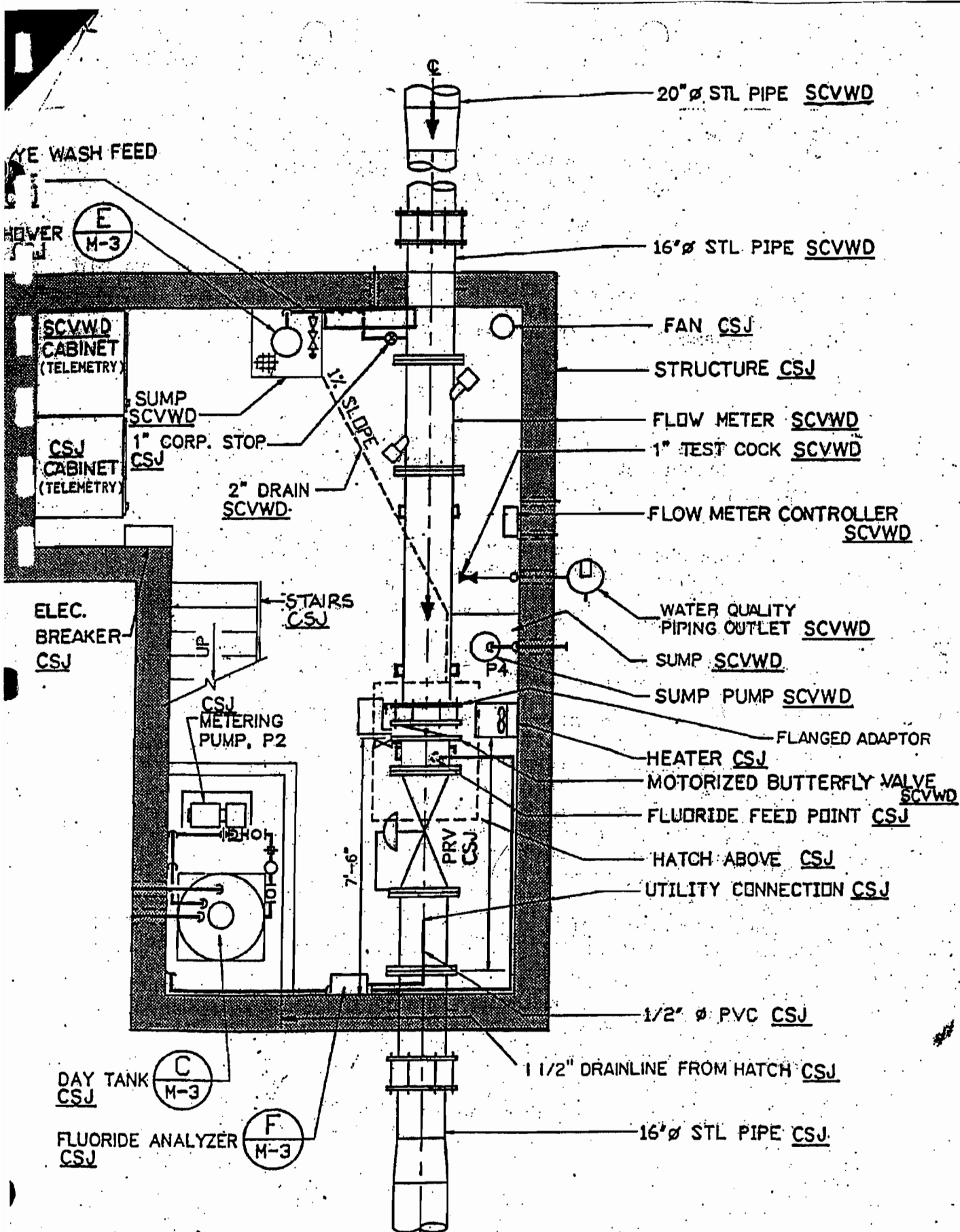


EXHIBIT D

CITY OF SAN JOSE—MEMORANDUM

TO Honorable Mayor and City Council
SUBJECT See Below

FROM D. Kent Dewell, Director
Department of Public Works
DATE March 15, 1985

APPROVED

DATE

AMENDMENT TO CONTRACT BETWEEN SANTA CLARA VALLEY WATER DISTRICT AND CITY OF SAN JOSE FOR A SUPPLY OF TREATED WATER

BACKGROUND INFORMATION

The City of San Jose contracts with the Santa Clara Valley Water District for the purchase of a treated water supply which is served to the customers of the Municipal Water System-Evergreen Service Area without further treatment.

The contract provides that the City will purchase and the District will deliver varying amounts of water per month based on estimates prepared by the Municipal Water System and approved by the Valley Water District. The original contract approved in 1972 provided that the District would provide up to 15 percent of the annual demand in any one month. This is equivalent to 180 percent of the average annual day. The average annual day is the total amount of water contracted for in one year divided by 365 days. The contract also stipulated that the District would provide up to 205 percent of the average annual day demand for a maximum of three (3) consecutive days. This peaking capacity was assumed sufficient to provide the peak day demands during the hot summer months.

Because of the District's current limited treatment plant capacity, the various water contractors, including the City of San Jose, have approved a revised contract which temporarily limited their peak day demands to 180 percent of the average annual day demand until 1990.

The District is currently planning the construction of a new treatment plant to be located in the South Almaden Valley Area and installation of a large distribution pipeline which will connect to the existing Valley Water District pipeline, which currently terminates at White and Aborn Roads. The Municipal Water System will receive future water supplies from these new facilities beginning in 1988.

Because of the substantial additional cost of construction in both the treatment plant and pipeline to provide 205 percent of average day demand rather than 180 percent of average day demand, the District has proposed that a treated water contractor may elect to amend their existing contract permanently such that the District would only be required to deliver 180 percent of the average annual day rather than 205 percent.

To: Honorable Mayor and City Council
From: D. Kent Dewell
Subject: Amendment to Contract Between Santa Clara Valley Water District and City of San Jose for a Supply of Treated Water
Date: March 15, 1985
Page 2

By electing the 180 percent option and amending the contract, water rates would be 12 to 15 percent less than for those contractors who elect to retain the 205 percent provision.

ANALYSIS:

Although the 205 percent of average annual day for three days was helpful in meeting the Municipal Water Systems peak day demands, it was found that the peak day demands would often extend for a week or ten days of very hot weather. In order to provide for this demand, wells were utilized to supplement the District supply. When the District supply was interrupted in the past, the wells were used to provide emergency supplies. Interruptions in the District supply have been very infrequent; however, they have extended for over one week for scheduled interruptions and three to four days for unscheduled interruptions. This is a strong argument to continue to provide sufficient well capacity to be able to meet emergency demands. If the well supplies are available for the scheduled and unscheduled interruptions, then these wells will be available to provide the supplementary supply for peak day demands.

It is anticipated that the four (4) existing wells will provide sufficient supplemental and emergency capacity until 1987-88, at which time another well will be required.

By selecting the 180 percent option, the savings in annual operations cost for water to the Municipal Water System in 1990 will be over \$200,000.

RECOMMENDATION:

It is recommended that a resolution amending the existing contract with the Santa Clara Valley Water district be approved.

D. KENT DEWELL, Director
Department of Public Works

WMD
DKD:WML:gc

**AMENDMENT TO CONTRACT BETWEEN
SANTA CLARA VALLEY WATER DISTRICT
AND
CITY OF SAN JOSE
FOR A SUPPLY OF TREATED WATER**

THAT CERTAIN CONTRACT dated the 27th day of January 1981 by and between SANTA CLARA VALLEY WATER DISTRICT, hereinafter referred to as "District", and CITY OF SAN JOSE, hereinafter referred to as "Contractor", is hereby amended in the following particulars:

FIRST: Section 2 of ARTICLE B., WATER SERVICE PROVISIONS, of said Contract is hereby amended to read:

2. Amounts of Water - Rates of Flow

- (a) District agrees to deliver to Contractor during each fiscal year or fractional fiscal year of this Contract, as the case may be, the amounts of treated water set forth on the approved delivery schedule for each year or fractional fiscal year, as the case may be.
- (b) District agrees to deliver to Contractor on demand in any month during the terms of this Contract at least 15 percent of the total amount of treated water which District has theretofore agreed to deliver to Contractor during the applicable fiscal year as shown on the approved delivery schedule; provided, that District may limit the maximum flow rate for each Contractor to 180 percent of the then net current annual volume of that Contractor shown on the approved delivery schedule expressed as an equivalent uniform rate over the full year. District will give Contractor reasonable prior notice of any such proposed limit of maximum flow rates.

SECOND All other provisions of said Contract shall remain in full force and effect.

////

IN WITNESS WHEREOF, District has caused this Contract to be executed by the Chairman of its Board of Directors and caused its Official seal to be hereunto affixed and Contractor has caused these presents to be executed on _____, by its duly authorized officer.

ATTEST: SUSAN A. PINO

SANTA CLARA VALLEY WATER DISTRICT

Clerk of the Board of Directors

By _____
Chairman of the Board of Directors
"District"

Approved as to form:

Robert M. McKinley
General Counsel, Santa Clara
Valley Water District

ATTEST:

CITY OF SAN JOSE

City Clerk

By _____
"Contractor"

Its _____

Approved as to form:

Attorney for City

**CLERK'S
COPY**

FORM 4/22/80

10-28-80

Res. 5578

**CONTRACT BETWEEN SANTA CLARA VALLEY WATER DISTRICT AND
CITY OF SAN JOSE
FOR A SUPPLY OF TREATED WATER**

THIS CONTRACT is made and entered into on January 27, 1981, between the SANTA CLARA VALLEY WATER DISTRICT, hereinafter referred to as "District", and CITY OF SAN JOSE hereinafter referred to as "Contractor" and supersedes previous water service contracts between District and Contractor.

RECITALS:

A. District has executed contracts with the State of California Department of Water Resources and the United States Bureau of Reclamation, whereby District is and will be entitled to receive imported water and District intends to continue construction of a system within the boundaries of District to distribute water so received.

B. Included within said system are facilities to treat and filter such water; and Contractor is desirous of obtaining a supply of treated water from District.

AGREEMENT: For and in consideration of the mutual promises and covenants herein contained, the parties hereto agree as follows:

ARTICLE A. INTRODUCTORY PROVISIONS

1. Definitions - When used in this contract, the following terms shall have the meanings hereinafter set forth:

- a) "Fiscal Year" shall mean each 12-month period during the term hereof commencing July 1 of one year and terminating June 30 of the next succeeding year, both dates inclusive.
- b) "Each Contractor", or "Other Contractor", shall mean any entity, public or private, contracting with District for a supply of treated water.
- c) The "Act" shall mean the Santa Clara Valley Water District Act, as amended.
- d) "Board" shall mean the Board of Directors of the Santa Clara Valley Water District.

2. Term of Contract

- a) This contract shall become effective on the date first above written and shall remain in effect for a period of 70 years or until all loans and all bonds, the proceeds of sale of which have been used for the construction of water treatment and distribution facilities have been retired, whichever period shall be longer, provided, however, that in no event shall the term of this contract be deemed to extend beyond the period authorized by law.

ARTICLE B. WATER SERVICE PROVISIONS

1. Water Delivery Schedules

- a) On October 15, 1980, and every three years thereafter, Contractor shall submit in writing a proposed delivery schedule for the ensuing three-year period beginning July 1 of the following year. The proposed delivery schedule shall be submitted on a form provided by the District and shall indicate the amounts of treated water desired by Contractor during each year of the ensuing three-year period. Except as provided in Subsection c of this section, Contractor agrees that in submitting a proposed water delivery schedule it will not request an amount of water for each year which shall be less in total than 95 percent of the amount for the fiscal year containing the maximum amount in the then current three-year schedule unless Contractor shall have assigned or agreed to assign a portion of its rights, privileges, and obligations hereunder pursuant to the provisions of Article A, Section 4, hereof and i) District has consented to such assignment, or ii) Contractor otherwise shall have been relieved of a portion of its obligations hereunder pursuant to the provisions of said Article A, Section 4; that following occurrence of either event specified in the preceding clauses i) and ii), the foregoing provisions of this Subsection a) shall apply only to the unassigned portion of the Contractor's rights and obligations hereunder.
- b) Upon receipt of such delivery schedule, District shall review same, and after consultation with Contractor and Other Contractors receiving treated water from District, shall approve such schedule or make such reductions therein as are consistent with District's ability to deliver water to Contractor and Other Contractors; provided, however, that subject to availability of funds, financing policies, construction schedules, and operating schedules, District will make every reasonable effort to approve each proposed delivery schedule submitted by Contractor and Other Contractors. Except as provided in Subsection c of this section, District agrees that it will approve a delivery schedule for said ensuing schedule period which will not be less in total amount for each fiscal year of said schedule period than 95 percent of the maximum fiscal year set forth in the then current schedule period.
- c) Notwithstanding the provisions of Subsections a and b of this section, either Contractor or District may request that the minimum amount of water for each fiscal year in the ensuing three-year schedule period be reduced to a lesser minimum amount than prescribed in Subsections a and b. Upon written agreement by both Contractor and District, based on a showing of extraordinary circumstances, the delivery schedule may be approved at such lesser amount.
- d) The approved delivery schedule shall be transmitted to Contractor prior to December 31 of the year in which the proposed delivery schedule is submitted. The approved delivery schedule for fiscal years 1976-77 through 1980-81 is set forth in Exhibit B, attached hereto and by this reference made a part hereof.

- e) For operating and planning purposes, Contractor shall, on forms provided by District, annually supply District with Contractor's anticipated monthly delivery schedules for the ensuing year and such information reasonably needed by District to determine projected annual deliveries for the next ensuing five years. Contractor's anticipated monthly delivery schedules shall not constitute a commitment by Contractor to receive the amounts of water set forth therein but shall establish the monthly schedule amounts of treated water to be delivered to Contractor for certain purposes under Article C hereof.

2. Amounts of Water - Rates of Flow

- (a) District agrees to deliver to Contractor during each fiscal year or fractional fiscal year of this Contract, as the case may be, the amounts of treated water set forth on the approved delivery schedule for each year or fractional fiscal year, as the case may be.
- (b) District agrees to deliver to Contractor on demand in any month during the term of this contract at least 15 percent of the total amount of treated water which District has theretofore agreed to deliver to Contractor during the applicable fiscal year as shown on the approved delivery schedule.
- (c) District further agrees to provide facilities capable of delivering and will deliver the amounts of water prescribed by Subsections a and b of this section on demand of Contractor at rates of flow up to an instantaneous maximum flow rate equivalent to 205 percent of the then current annual volume shown on the approved delivery schedule expressed as an equivalent uniform flow rate over the full year for an aggregate of 72 hours in any month and for such additional hours in any month as District has the capability to deliver at said rate, provided that District, at such times during the remainder of such month when District does not have the capability to deliver at said rate, may reduce such rate to an instantaneous maximum flow rate not to exceed 180 percent of said annual volume expressed as an equivalent uniform flow rate over the full year.
- d) Notwithstanding the foregoing, during the period July 1, 1979 to June 30, 1990, District may limit the maximum flow rate for each Contractor to 180 percent of the then current annual volume of that Contractor shown on the approved water delivery schedule expressed as an equivalent uniform rate over the full year. District will give Contractor reasonable prior notice of any such proposed limit of maximum flow rate.

3. Delivery Structures

- a) Water delivered to Contractor pursuant to this contract shall be provided from District facilities through delivery structures to be located at such locations as may be mutually agreed upon. Such delivery structures shall be designed and constructed or caused to be constructed by District. Design and bid costs shall be subject to favorable review and approval by the Contractor prior to award of

construction contract for the delivery structure. District shall pay for the cost of the land, automated controls and reporting systems, nozzle turnout and shutoff valve portion of each of said structures, and Contractor shall pay the total cost of acquiring and installing the measuring devices, the vault or housing and the flow regulating devices, if any, of each of said structures as said devices and facilities are shown on Exhibit C attached hereto and by this reference made a part hereof. Upon thirty (30) days' written notice by District, Contractor shall deposit with District prior to such acquisition and installation an amount of money estimated by District to be sufficient to cover such cost to be borne by Contractor. In the event such estimate proves to be low, Contractor shall pay to District upon written demand therefor the difference between District's estimate and the actual cost to be borne by Contractor. In the event such estimate proves to be high, District shall refund to Contractor promptly the difference between the actual cost to be so borne by Contractor and the amount of said deposit.

- b) Title to all delivery structures and to all appurtenances up to and including the control valve shall be in District and Contractor shall have no obligations or responsibilities with respect thereto and shall be under no obligation to operate, maintain, repair, replace or relocate the same.

4. Measurement of Water Delivered - District shall measure all water delivered to Contractor and shall keep and maintain accurate and complete records thereof. For such purpose, District shall install, operate and maintain at all delivery structures such measuring devices and equipment as are satisfactory and acceptable to both parties.

5. Curtailment of Delivery During Maintenance Periods - District will make all reasonable effort to provide continuous service to Contractor but may temporarily discontinue or reduce the delivery of water to Contractor for the purpose of necessary investigation, inspection, maintenance, repair or replacement of any of the facilities necessary for the delivery of treated water to Contractor. District shall notify Contractor as far in advance as possible of any discontinuance or reduction and the estimated duration of such discontinuance or reduction. Recognizing that Contractor will rely on District for uninterrupted deliveries of water particularly during the high water consumption months each year, District agrees to use its best efforts throughout the term of this contract to make any such discontinuance or reduction in the delivery of water only during the period of November through March in any fiscal year. In the event of any discontinuance of or reduction in delivery of water, Contractor may elect to receive the amount of water which otherwise would have been delivered to it during such period under the approved water delivery schedule for that fiscal year at other times during such year, consistent with District's delivery ability considering the then current delivery schedules of all Other Contractors.

6. Suspension of Service Upon Default - In the event of any default by Contractor in the payment of any money required to be paid to District hereunder, District may, upon not less than three months' written notice to Contractor, suspend deliveries of water under this contract for so long as such default shall continue, provided, however, that during such period Contractor shall remain obligated to make all payments required under this contract and provided, further, that such delinquent amount shall accrue interest at the rate of one-half of one percent per month commencing on the

due date of such delinquent amount and continuing until both the principal amount of such charges and the interest thereon are paid in full. Such suspension of delivery taken pursuant to this Section 6 shall not deprive District of or limit any remedy provided by this contract or by law for the recovery of money due or which may become due under this contract. In the event of any disagreement between Contractor and District as to the amount of any bill rendered to Contractor by District, water service shall not be discontinued if the disputed amount thereof is placed on deposit with District. Such deposit shall not preclude review and adjustment of any water bill as set forth in Article C, Section 8, hereof.

7. Water Quality - District agrees that all water to be delivered by it to Contractor pursuant to the terms of this contract will be pure, palatable, wholesome, potable and healthful and that all such water will be of such quality that the same may be used for domestic purposes at the points of delivery thereof to Contractor without further treatment. District understands that Contractor is a public utility furnishing water to its customers for domestic purposes and that water to be delivered by it to Contractor hereunder will be delivered by Contractor to said customers. District agrees that its system shall be constructed and operated during the term hereof in accordance with a permit or permits, including temporary permits, to be issued by the State Department of Health Services, copies of which will be furnished to Contractor upon receipt by District. District agrees that the treated water to be delivered to Contractor pursuant to this contract shall conform to the quality requirements set forth in the then current primary and secondary standards for domestic water quality and monitoring regulations adopted by the California State Department of Health. Should the need arise, District and Contractor will cooperate fully in adjusting their respective processes to the extent reasonably practicable; and provided such adjustments do not affect other Contractors, to aid the Contractor in conforming to such law within the Contractor's distribution system.

ARTICLE C. PAYMENT PROVISIONS

1. The payments to be made by Contractor and Each Contractor for delivery of treated water shall be a price per acre-foot based upon the pricing policy adopted by the Board, dated January 18, 1971, as from time to time amended, which is set forth in Exhibit D, attached hereto and by this reference made a part hereof, and shall be the total of the basic water charges and treated water surcharge as determined by the District Board for each period for which a rate schedule is effective.

2. In determining the above charges, the basic water charge shall be equal to District's groundwater charge for water other than agricultural water (said words "agricultural water" being defined in the Act) in Zone W-2, which shall be determined annually by the Board in accordance with the legal provisions and requirements of the Act; provided, however, that during each rate period the District will consider all anticipated costs for each such rate period and will endeavor to establish during the first year of such rate period a groundwater charge that is intended to remain constant for the full rate period.

3. District shall charge for the delivery of treated water in accordance with the rate schedule for water service as such rate schedule is established by the Board. The Board of Directors shall review said rate schedule every three years to determine whether the schedule is in accordance with the most recent and anticipated costs and revenues of District. Accordingly, the Board shall, on or about the second Tuesday in March 1981, but not later than April 15, 1981, establish a rate schedule for the rate period commencing July 1, 1981 through June 30, 1984, and shall follow said procedure

for each ensuing three-year period. Each such rate schedule shall be prospective in operation, but shall provide for the recovery of expenditures to be recovered by the basic water charge and the treated water surcharge during the period said rates are in effect and any shortages of revenue for said expenditures that may have been experienced during the preceding rate periods. It is agreed that the rates to be so established shall not be unreasonable or arbitrary, shall be based upon reasonable estimates of costs and water deliveries and shall be the same for Contractor and Other Contractors and all other persons, public or private, purchasing treated water from District, regardless of the point of delivery of such water by District; District agrees to use its best efforts throughout the term of this contract to collect from Other Contractors, and such other persons in accordance with such rate schedules, the appropriate sums of money without deduction or offset according to the respective amounts of treated water delivered by the District.

4. Contractor shall pay District the rate or rates set forth on the rate schedules during the period said rate schedules are effective for all water delivered to the Contractor; provided, however, that Contractor shall pay District at least a minimum charge each year applicable to water scheduled to be delivered in such year, which minimum charge shall be based upon an amount of treated water equal to 90 percent of the total amount of treated water to be delivered to Contractor during that fiscal year as shown on the approved delivery schedule; provided, however, that if Contractor during any other year of the current rate schedule period has purchased water in excess of 90 percent of the water scheduled to be delivered to Contractor during such other year, such delivery in excess of 90 percent for such other year may be used as a credit against years in such rate schedule period in which Contractor received less than 90 percent of the treated water as shown on the approved delivery schedule, and if Contractor has paid, pursuant to such annual minimum charge, for water not delivered to it, Contractor shall have the right to receive such undelivered water without additional payment during the remainder of the then current rate schedule period at times when District has the delivery capability provided further, however, that:

- a) If in any day of any year during the term hereof, District, for any reason, including reduced deliveries pursuant to the provisions of Article D hereof, shall be unable to deliver treated water to Contractor in an amount equal to 1/30 of the then current monthly scheduled amount as set forth in Article B, Section 1(e) as expressed as a uniform daily volume, the then minimum charge for that year shall be based upon an amount of water as calculated above in Section 4 reduced by an amount equal to the reduction required by District for each day a reduced delivery is required.
- b) If in any day of any year during the term hereof District shall offer to deliver to Contractor water which shall fail to meet the quality requirements set forth in Article B, Section 7, hereof, then Contractor shall have the right to refuse to accept or reduce deliveries of water from District until such time as such water shall meet said quality requirements. In such event Contractor shall immediately notify District, and confirm in writing within 5 days of the beginning of any such period. In any such year the then minimum charge shall be reduced by an amount equal to the volume of water reduced by the Contractor up to an amount equal to 1/30 of the then current monthly scheduled amount as set forth in Article B, Section 1(e), as expressed as a uniform daily volume for each day that water service is so refused or reduced by the Contractor. If Contractor at

any time, or from time to time during the term hereof, should have the right to refuse to accept water from District by reason of the foregoing provisions of this Subsection 4b, but should nevertheless fail to exercise such right, such failure shall in no event be deemed to waive or limit exercise of such right by Contractor. Except as set forth by the foregoing provisions of this Section 4, Contractor shall not be obligated to pay for any water not accepted by it. Nothing contained in this Section 4 shall in any way be deemed to limit Contractor's obligation to pay for all water accepted by it from District in accordance with the appropriate rate set forth from time to time in District's then applicable rate schedule.

- c) If in any year during the term hereof, the Board of Directors of District shall by Resolution place in effect a water reduction program in excess of 10 percent of normal usage, the monthly scheduled amounts or portions thereof, as set forth in Article B, Section 1e, for that portion of the year when such water reduction program is in effect shall be reduced by the same percentage as required by the water reduction program less 10 percent. The Contractor shall be notified in writing of such water reduction program.

5. Surplus - If District shall determine, in accordance with sound accounting practice, that the aggregate of the revenues received by it in any fiscal year, or any rate period, during the term hereof a) from the sale of treated water to Contractor and Other Contractors, b) from the sale of raw water, and c) through collection of the groundwater charges referred to in Article E hereof, has exceeded District's costs and expenses during such year, or rate period, District shall retain such excess and reserve the same for purchases of raw water, construction, maintenance or operation of existing or additional facilities for the importation, conservation, treatment or wholesale distribution of water, reduce its scheduled price of treated water or, subject to the provisions of the Act, reduce said groundwater charges. It is understood that the object in computing rates under this contract is to cover the costs related to the importation, conservation, treatment or wholesale distribution of water.

6. Non-Contract Water - The term "non-contract water" refers to treated water found by District to be available for delivery to the treated water contractors in addition to the scheduled amounts. Non-contract water may be available only at such times and such prices as determined by the District. District will notify Contractor in writing thereof. Deliveries of non-contract water to Contractor will only be made after Contractor has purchased 100 percent of the monthly scheduled amount as set forth in Article B, Section 1(e). Further, at the end of each fiscal year an adjustment in billing will be made and Contractor will be required to have paid for 100 percent of the approved delivery scheduled amount, less any other adjustments before the purchase of non-contract water is allowed. During any period in which non-contract water is not available and Contractor takes water in excess of its scheduled amount, such water will not be reclassified and will be charged for at the full contract price. Water taken in excess of scheduled amounts during periods when non-contract water is not available may be credited as a part of Contractor's minimum annual charge.

7. Billings - Billings shall be made monthly as follows: On or about the first of each month District will send to Contractor a bill calculated in accordance with the provisions of Article C hereof for all treated water accepted by Contractor from District during the preceding month. The final bill for each fiscal year shall include any sums due for the minimum charge required by Article C, Section 4, hereof. District shall make

every effort to make required meter readings on the last day of each calendar month, but District shall be entitled to make such readings three days prior to the close of any calendar month or within five days after the beginning of any calendar month.

8. Time and Method of Payment - Payments shall be made by Contractor to District within twenty (20) days after billing by District. In the event that Contractor in good faith contests the accuracy of any bill submitted to it pursuant to this contract, it shall give District notice thereof at least five (5) days prior to the day upon which payment of the stated amount is due. To the extent that District finds Contractor's contentions regarding the statement to be correct, it shall revise the statement accordingly and Contractor shall make payment of the amounts on or before the due date. To the extent that District does not find Contractor's contentions to be correct or where time is not available for a review of such contentions prior to the due date, Contractor shall pay the billed amount on or before the due date and may make the contested part of such payment under protest and seek to recover the amount in question from District.

ARTICLE D. AVAILABILITY OF WATER

1. In any year in which there may occur a water shortage by reason of drought or other temporary cause in the supply of water available for delivery to all users, District shall, before reducing other deliveries of water, reduce, or if necessary cease, to the extent permitted by the operation of District's facilities consistent with its obligations to receive water pursuant to the State and/or Federal Contract, all deliveries of untreated water for recharge of groundwaters.

2. If, despite such reduction or cessation of such deliveries of untreated water for groundwater recharge pursuant to the provisions of the preceding Section 1, a further reduction in deliveries shall become necessary if the treated water requirements set forth on the approved delivery schedule of Contractor and Other Contractors are to be met, District shall, before reducing deliveries to Contractor and Other Contractors, reduce the total amount of agricultural water (as defined in the Act) released to others for surface delivery during such fiscal year by an amount equal to the following: namely, the average of the releases of such surface-delivered agricultural water during the preceding three fiscal years multiplied by the percentage by which District's total receipt of water from State and Federal sources for agricultural use (as such use is defined in the State and Federal Contracts) is reduced in such year pursuant to provisions of said contracts.

3. If any reduction in deliveries of treated water shall become necessary following reductions in untreated water pursuant to the provisions of the preceding Sections 1 and 2, District shall reduce deliveries of treated water to Contractor and Other Contractors in an amount which bears the same proportion to the total amount of such reduction that the amount included in such treated water user's approved delivery schedule bears to the total of the amount included in the approved delivery schedule of Contractor and Other Contractors for that fiscal year, all as determined by District; provided that District may apportion on some other basis if such is required to meet minimum demands for domestic supply, fire protection, or sanitation during the year. District agrees to notify Contractor in writing promptly in the event any such reduction in deliveries to Contractor and Other Contractors shall be decided upon and concurrently of the amount of such reduction and of any changes in Contractor's approved delivery schedule.

4. District shall not be liable for failure to deliver water to Contractor hereunder in the amounts hereinabove provided if such failure shall be caused by drought or any other reason beyond the reasonable control of District.

5. District shall give Contractor written notice as far in advance as possible of any reduction in deliveries of treated water which may be necessary because of a shortage in water supply.

ARTICLE E. GROUNDWATER CHARGE

District agrees that in establishing or modifying the boundaries of any zone pursuant to the provisions of the Act, it will not act in an unreasonable, arbitrary, capricious or discriminatory manner. District further agrees that it will use its best efforts throughout the term of this contract to collect, without deduction or offset, from all persons operating groundwater-producing facilities (as said words are defined in Section 26.1 of the Act) the groundwater charges at the rates per acre-foot of water then applicable in the zone of the District in which each such facility is located.

ARTICLE F. REMEDIES

By reason of the specialized nature of the water service to be rendered, and for the further reason that the extent of any damage caused to either party by the other by reason of any breach of this contract may be extremely difficult to determine, it is agreed by the parties hereto that an action for damages is an inadequate remedy for any breach, and that specific performance, without precluding any other remedy available in equity or at law, will be necessary to furnish either party hereto with an adequate remedy for the breach hereof.

ARTICLE G. GENERAL PROVISIONS

1. Amendments - This Contract may be amended at any time by mutual agreement of the parties, except insofar as any proposed amendments are in any way contrary to applicable law. District agrees that in the event of legally enforceable action by a cognizant governmental body, either a) producing a prospective change in the volume of use of water by Contractor's customers, as by the imposition of an order suspending new services, or b) requiring reuse of wastewater or forbidding or limiting the discharge of wastewater into San Francisco Bay, District will make such amendments to Exhibit B of this contract as the circumstances may reasonably and equitably require.

2. Challenge of Laws - Nothing herein contained shall be construed as stopping or otherwise preventing Contractor or District from contesting by litigation or other lawful means the validity, constitutionality, construction, or application of any law of this State, any ordinance of District, or any rule, regulation or practice of District or Contractor.

3. Waiver of Rights - Any waiver at any time by either party hereto of its rights with respect to a default or any other matter arising in connection with this contract shall not be deemed to be a waiver with respect to any other default or matter. None of the covenants or agreements herein contained can be waived except by the written consent of the waiving party.

4. Notices - All notices or other writings in this contract provided to be given or made or sent, or which may be given or made or sent, by either party hereto to the other, shall be deemed to have been fully given or made or sent when made in writing and deposited in the United States mail, registered, or certified, postage prepaid, and addressed as follows:

To District: Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, California 95118

To Contractor: City of San Jose
801 North First Street
San Jose, California 95110

The address to which any notice or other writing may be given or made or sent to either party may be changed upon written notice given by such party as above provided.

5. Separability - If any one or more of the covenants or agreements set forth in this contract on the part of District or Contractor, or either of them, to be performed should be contrary to any provision of law or contrary to the policy of law to such extent as to be unenforceable in any court of competent jurisdiction, then such covenant or covenants, agreement or agreements, shall be null and void and shall be deemed separable from the remaining covenants and agreements and shall in nowise affect the validity of this contract.

6. Paragraph Headings - Paragraph headings in this contract are for convenience only and are not to be construed as a part of this contract or in any way limiting or amplifying the provisions hereof.

7. Other Contracts - District agrees that each contract for the supply of treated water hereafter entered into by District with any Other Contractor shall contain provisions substantially similar to those herein set forth and shall not contain any provisions of a material nature more favorable to the Other Contractor than the provisions herein applicable to the Contractor.

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IN WITNESS WHEREOF, District has caused this contract to be executed by the Chairman of its Board of Directors and caused its Official Seal to be hereunto affixed and Contractor has caused these presents to be executed on 19 , by its duly authorized officer.

ATTEST: SUSAN A. EKSTRAND

SANTA CLARA VALLEY WATER DISTRICT

Doris Marmick
Clerk of the Board of Directors
CLERK PRO TEM OF THE BOARD OF DIRECTORS

By [Signature]
Chairman of the Board of Directors
"District"

Approved as to form:

[Signature]
General Counsel, Santa Clara
Valley Water District

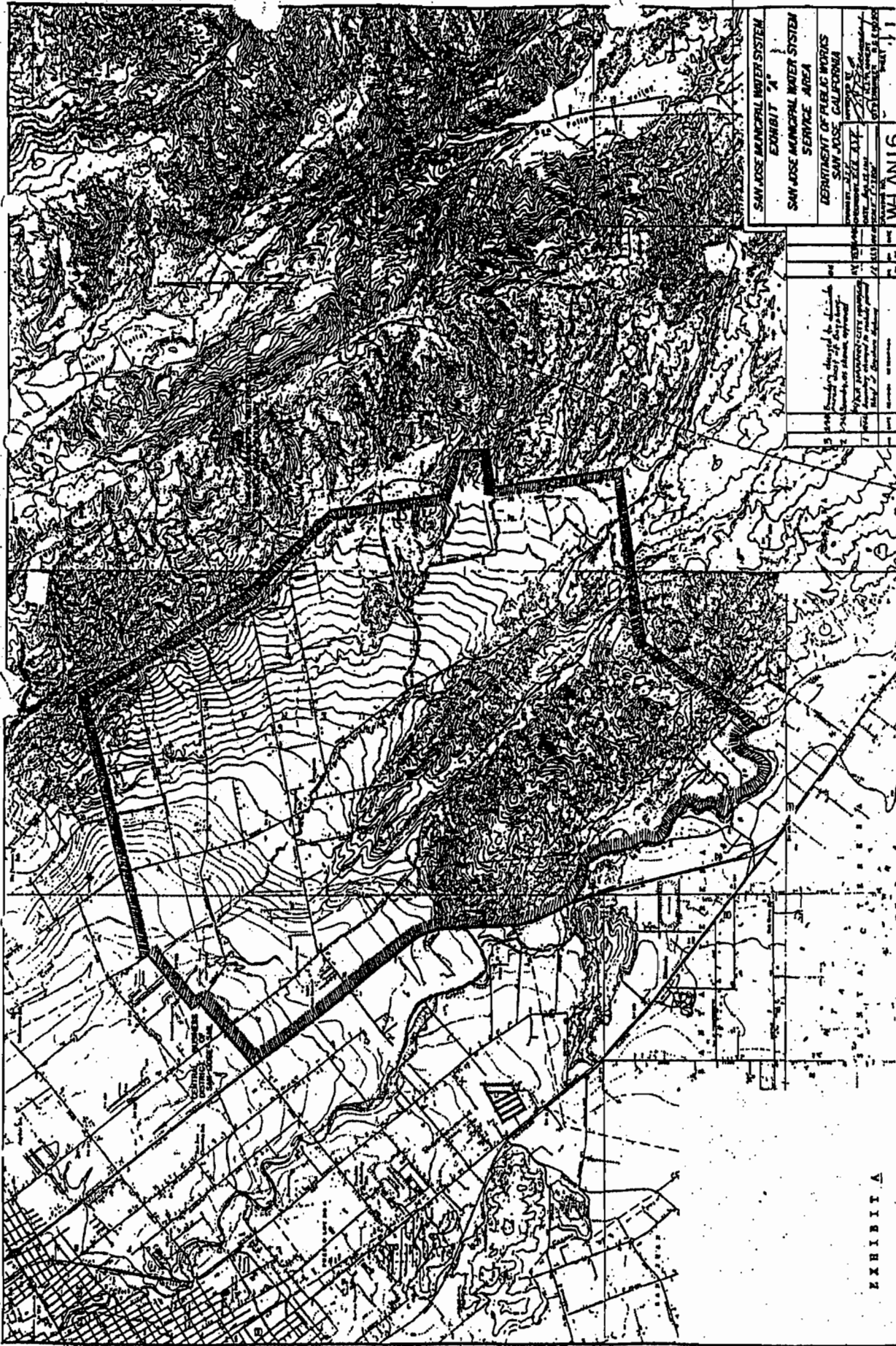
ATTEST:

CITY OF SAN JOSE

By [Signature]
Helen E. Jackson
Its CITY CLERK
"Contractor"

Approved as to form:

[Signature]
Attorney for Contractor



SAN JOSE MUNICIPAL WATER SYSTEM
 EXHIBIT "A"
 SAN JOSE MUNICIPAL WATER SYSTEM
 SERVICE AREA
 DEPARTMENT OF PUBLIC WORKS
 SAN JOSE, CALIFORNIA
 PREPARED BY
 DATE
 SCALE
 SHEET NO. 1 OF 1

EXHIBIT A

FIVE YEAR DELIVERY SCHEDULE

Quantity of Water Requested in Acre-Feet

Fiscal Year 1976-77	Fiscal Year 1977-78	Fiscal Year 1978-79	Fiscal Year 1979-80	Fiscal Year 1980-81
3400	3600	3800	4000	4200

Submitted By:

JE Eastus by W. M. Solari

Contractor's Representative

Oct. 17, 1975

Date

City of San Jose

801 North First Street

San Jose, California 95110

District Approval:

[Signature]
District's Representative

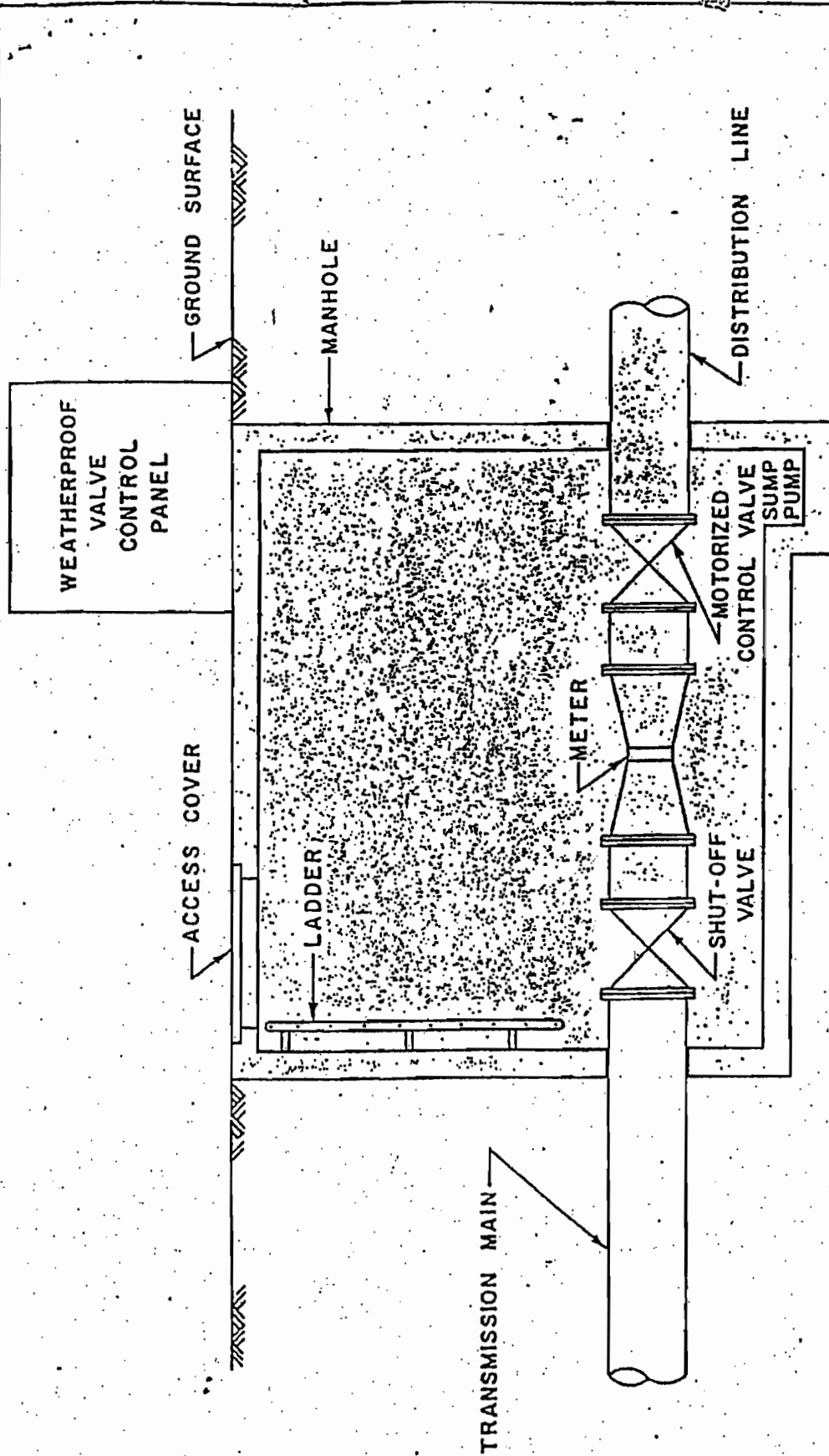
December 18, 1975

Date

RE: Please review Article B, Sections a and c, of the "Contract for a Supply of Treated Water" dated September, 1971.

September 1975

EXHIBIT "B"



"C"
EXHIBIT
TYPICAL TURNOUT STRUCTURE

No Scale

Note:
Shaded features paid for in advance
of construction by Contractor
Open or unshaded features paid
for by District

MARCH 1965

SANTA CLARA COUNTY FLOOD CONTROL AND WATER DISTRICT
TAXING AND PRICING POLICY

Objectives of a Water Pricing Policy

The broad objective of a proper pricing policy should be to charge the recipients of the various benefits for the benefits received.

There are several types of benefits which result from a comprehensive water program. The primary benefit is that of providing a water supply to the District so that we can optimize the methods of using the water resources available to the area. All of the facilities constructed or to be constructed should and do provide this benefit, whether the facilities are source of supply facilities such as reservoirs and import facilities; transmission facilities such as aqueducts, canals, pipelines, and percolation ponds; or the water treatment plants. Some of these facilities provide special and distinct benefits. The reservoirs provide flood control benefits in the watersheds in which they are located and provide recreational benefits such as fishing, boating, picnicking, camping, hiking, swimming, etc., to the entire County. Some of the percolation ponds also support similar recreational activities and provide a county-wide recreational benefit.

In addition to the water supply, flood control, and recreational benefits resulting from the water program, there is also a general economic benefit to either the County as a whole or the area of service of the facilities to be constructed. These benefits result from the mere construction of the facilities such as reservoirs, import lines, transmission mains and treatment plants which provide an availability for water even though such facilities are not put to use. In the construction of such facilities, excess capacity should be provided to insure the capability for a growing economy.

A final and important benefit resulting from the water program, closely allied to the general economic benefit, is the ability to retard and eliminate subsidence.

It is possible to ascertain the costs associated with some of these benefits, for example--the share of costs allocated to flood control resulting from construction and operation of the reservoirs and to recreation associated with the reservoirs, and the percolation ponds can be ascertained through application of

recognized cost allocation formulas. Some aspects of cost related to the elimination of subsidence such as the cost of water used to replace the accumulated overdraft can be easily measured. It becomes more difficult, however, to allocate the remaining costs between water supply benefits and the economic benefits.

Whenever costs associated with specific benefits are clearly and easily measurable they should be charged to the beneficiaries. Those beneficiaries who receive a supply of water for consumptive use (use of water for private recreational purposes is considered a consumptive use) should pay for such benefits on the basis of a properly allocated water user charge. Those who receive benefits from the other elements of the water program should be charged on the basis of taxes in the areas of benefit. Where there is a question as to the identity of the beneficiary or the method of measuring the benefit, the allocation of costs should remain flexible and be determined in accordance with accepted practices and sound judgments.

As a means of accomplishing the aforementioned objectives, the pricing policy should embody the following concepts:

1. A Water Pooling Concept - The water pooling concept is, to a limited extent, embodied in the present pricing policy. Under this concept water is considered to be mixed irrespective of its source and cost. The water is considered as a single commodity whether it be (a) water provided without benefit of local conservation facilities or importation, (b) water made available through our local conservation reservoirs, (c) water which is imported from the South Bay Aqueduct at present and will be imported through the Pacheco Aqueduct upon completion of the San Felipe Project, or (d) water from other sources such as reclaimed water, desalinized water, or weather modification.

The concept should be retained, but the configuration of the groundwater basin which constitutes the common pool should be re-examined and more accurately described. From a geological and hydrological standpoint, the groundwater basin receiving runoff from streams in Northwest, North Central, Central and East Zones of the District is a common pooling basin. Local conservation and distribution facilities and the importation of water have in the past, and will in the future, aid in equalizing the benefits within this geographic area.

2. A Water Facilities Cost Pooling Concept - This concept is considered a basic requirement of optimum water resources management, since all facilities contribute to the common benefit.

To illustrate this point, there is a possibility that the Central Pipeline now transmitting raw water will in the future be used for the transmission of treated water; that treated water could be served to the Evergreen area by construction of a southern loop rather than the Penitencia Treatment Plant and the Evergreen Pipeline; and that the District could build percolation ponds and raw water pipelines instead of treatment plants and treated water pipelines for service to various areas and to relieve the overdraft on the underground. It seems obvious that any transmission facility, whether it be canal or pipeline, or whether it be carrying raw water or treated water, is constructed to deliver water to the point of use and thereby augment facilities provided by nature for the transmission of water. The same is true of treatment plants which are a substitute for the filtering process provided by the underground basin. Any aqueduct or treatment plant is constructed to augment or supplement the natural transmission and filtration capability of our underground basin. The location of treatment plants along those pipelines is, or should be, determined by the least expensive overall cost in providing adequate water service. The "pooling of costs of facilities" concept would eliminate from present practices the reference to named facilities and would charge instead on the basis of common benefit.

3. A Water Resources Management Concept - This concept would allow the District to manage its total water supplies whether underground or surface delivered, to obtain the maximum utilization of the water resources of the area to the advantage of the present and future populations of the County. From an external standpoint, it is desirable that our taxes and charges be competitive with those of other agencies performing similar services. This end result is desirable to attract various types of commercial and industrial activity to provide a diversified employment force and a well-balanced economy. This concept would, through taxing and pricing, provide management tools to establish competitive rates and to optimize the benefits received by the use of the water resources of the area.

The Implementation of the Proposed Water
Taxing and Pricing Policy

To meet the objectives of a proper taxing and pricing policy, the following actions should be taken:

1. Establish zones encompassing the common groundwater basins benefited by conservation, import, and recharge, of water. Such area would include the basins of all watersheds feeding into a common underground basin by natural means or as aided by construction of importation, distribution and recharge facilities.

This zone would be a water charge zone in which charges should be levied on all groundwater extractions. The measure of this charge is determined in recommendations 6 and 7.

2. Establish a taxing zone or zones to reflect the areas presently capable of being served or which will, in the near future, be served by District-constructed water facilities. As new water facilities are added to serve new areas, the boundaries of the zones would, of necessity, be amended accordingly.

NOTE: If the present practice of levying ad valorem taxes instead of groundwater charges in the area south of Metcalf Road is to be continued, a taxing zone should be established to encompass the area south of Metcalf Road and such area should not be subject to a groundwater charge.

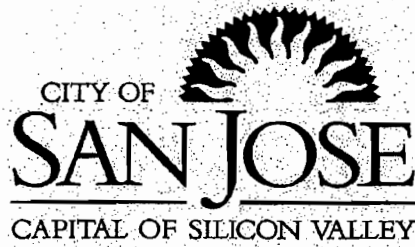
3. Levy a county-wide importation tax to pay for the economic benefits to the County as a whole for water availability. The measure of this tax would be the same measure as being applied under the present policy for the capital cost of the water importation facilities except that it would not be limited. Water importation facilities related to this tax would be the South Bay Aqueduct (State of California), the San Felipe Project (Bureau of Reclamation), and the Hetch Hetchy System (San Francisco).

The philosophy of this tax is that these facilities assure to the County an adequate supply of water simply by their existence and availability.

Capital costs of the South Bay Aqueduct are determinable from bills of the Department of Water Resources and present no problem in projecting costs.

The Bureau of Reclamation, in its San Felipe contract negotiations, is proposing a per-acre-foot cost for conveyance (equivalent to capital, maintenance and operating cost of the South Bay Aqueduct), for storage (equivalent to the State's Delta Water Charge) and for power as it relates to both conveyance and storage. The Bureau of Reclamation will be able to designate the portion of the conveyance cost attributable to capital expenditures. The Bureau's method of charging will provide an easily determinable method for accurately projecting the capital cost component of the Federal importation facilities.

The method of measuring the capital cost component of the Hetch Hetchy System is much more difficult. The Hetch Hetchy Aqueduct may not have the same degree of permanent availability as is found in the South Bay or Pacheco Aqueducts. Hetch Hetchy contracts terminate in the early 1980's while the State and Federal contracts do not terminate until after year 2020 and contain provisions for renewal. Furthermore, there is no firm capacity reserved for Santa Clara County in the Hetch Hetchy System, and a recent report to the San Francisco Water Department recommends deleting Santa Clara County, except for the City of Palo Alto, from the service area of the Hetch Hetchy System. The San Francisco system imports water from three sources - Calaveras Reservoir, the Sunol Filter Gallery and Yosemite Park. Some of the system has been completely paid for while other parts are being paid off on a twenty-year amortization schedule. Expenditures have been made in the Hetch Hetchy Aqueduct System to enhance power generation and for other uses which should be but are not easily separated from the water supply costs. In view of the above, an accurate and equitable method of computing the capital cost component seems uncertain - as does the availability of the aqueduct to Santa Clara County. Even though such uncertainties exist, the present existence and use of the Hetch Hetchy Aqueduct



Water Supply Assessment
for
Coyote Valley Specific Plan

May 2006

APPENDIX E

Prepared for
CITY OF SAN JOSÉ
MUNICIPAL WATER SYSTEM
ENVIRONMENTAL SERVICES DEPARTMENT

Prepared by
Todd Engineers
2200 Powell Street, Suite 225
Emeryville, California 94608
510-595-2120 / Fax 510-595-2112
toddengineers.com

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San José Municipal Code
Title 15 PUBLIC UTILITIES
Chapter 15.08 MUNICIPAL WATER SYSTEM 1

Chapter 15.08

MUNICIPAL WATER SYSTEM 1

Parts:

- [1 Definitions](#)
- [2 Service Areas](#)
- [2.5 Rates and Charges for Potable Water Service](#)
- [3 Description of Service](#)
- [4 Application for Connection](#)
- [5 Fire Hydrants](#)
- [6 Service Connections](#)
- [7 Fees and Charges](#)
- [8 Main Extensions](#)
- [9 Water Main Reimbursement Funds](#)
- [10 Municipal Water System Major Water Facilities Fee](#)

Part 1

DEFINITIONS

Sections:

- [15.08.010 Definitions generally.](#)
- [15.08.020 Actual costs.](#)
- [15.08.030 Applicant.](#)
- [15.08.040 Backup facilities.](#)
- [15.08.050 City.](#)
- [15.08.060 Department.](#)
- [15.08.070 Director.](#)

- 15.08.080 Engineering costs.**
- 15.08.085 Equivalent dwelling unit.**
- 15.08.090 Fiscal year.**
- 15.08.100 Land and interest in land.**
- 15.08.110 Main extension.**
- 15.08.115 Major water facility.**
- 15.08.120 Municipal water system.**
- 15.08.130 Person.**
- 15.08.140 Premises.**
- 15.08.150 Private fire protection service.**
- 15.08.160 Private fire protection service connection.**
- 15.08.165 Projected average daily water use.**
- 15.08.170 Public fire hydrants.**
- 15.08.180 Public fire hydrant service connection.**
- 15.08.190 Rules and regulations.**
- 15.08.200 Service area.**
- 15.08.205 Special assessment proceeding.**
- 15.08.210 Standard service connection.**
- 15.08.220 Water mains.**
- 15.08.230 Water main area charge and frontage charge.**

15.08.010 Definitions generally.

Unless the context otherwise requires, the words and phrases in this Part 1 shall have the following meanings and shall govern the construction of this Chapter 15.08.

(Prior code § 7600.)

15.08.020 Actual costs.

“Actual costs” means the cost of labor and materials of installing water mains and service connections and all costs incidental thereto other than engineering costs.

(Prior code § 7600.1.)

15.08.030 Applicant.

"Applicant" means a person applying for water service.

(Prior code § 7600.2.)

15.08.040 Backup facilities.

"Backup facilities" means sources of water supply, wells, storage reservoirs, standby facilities, meters and meter facilities (excluding individual customer meters), office equipment, operating vehicles, tools and special equipment, water treatment facilities, communication facilities, lands and interests in land.

(Prior code § 7600.3.)

15.08.050 City.

"City" means the city of San José, a municipal corporation of the state of California.

(Prior code § 7600.4.)

15.08.060 Department.

"Department" means the department of public works of the city.

(Prior code § 7600.5.)

15.08.070 Director.

"Director" means the director of public works of the city.

(Prior code § 7600.6.)

15.08.080 Engineering costs.

"Engineering costs" as used in this chapter means the costs of preparing detailed plans and specifications for water facilities, inspecting the construction of water facilities, and all overhead and administrative charges attributable to these actions.

(Prior code § 7600.7; Ord. 23975.)

15.08.085. Equivalent dwelling unit.

"Equivalent dwelling unit" (EDU) as used in this chapter means any use of land which is projected to use an average of four hundred gallons of water per day from the municipal water system.

(Ord. 23975.)

15.08.090 Fiscal year.

"Fiscal year" means a period of twelve months commencing July 1st and ending

June 30th.

(Prior code § 7600.8.)

15.08.100 Land and interest in land.

“Land and interest in land” means land owned in fee by the city and used for water facilities, and rights, interests and privileges held by the city such as leaseholds, easements, water rights, diversion rights, subversion rights-of-way, and other like interests in land for the production or transmission of water.

(Prior code § 7600.9.)

15.08.110 Main extension.

“Main extension” means the extension of water mains beyond existing facilities.

(Prior code § 7600.10.)

15.08.115 Major water facility.

“Major water facility” for purposes of Part 10 of this chapter means any improvement to the municipal water system of the city including, but not limited to, any installation that is used to store, transmit, purify, treat, pressurize, measure, pump or extract water, such as reservoirs, storage tanks, groundwater wells, pump stations, turnout connections to water supply sources, transmission mains, site improvement or appurtenant installations to accommodate growth and development.

(Ord. 23975.)

15.08.120 Municipal water system.

“Municipal water system” means the water system consisting of backup facilities, water mains and service connections owned and operated by the city.

(Prior code § 7600.11.)

15.08.130 Person.

“Person” means any individual, corporation, association, partnership, or any other private entity, or any governmental agency or body including the federal government, the state, the county, a city (excluding the city of San José), or any of their subdivisions.

(Prior code § 7600.12.)

15.08.140 Premises.

“Premises” means the integral property or area, including improvements thereon, to which water service is or is to be provided; and which is undivided by public streets or water mains of the municipal water system, except that such division may be permitted in the case of industrial, agricultural and public or quasi-public institutions, and where all parts of the premises are operated under the same management and for the same purpose.

(Prior code § 7600.13.)

15.08.150 Private fire protection service.

“Private fire protection service” means fire protection facilities not owned or operated by a public agency, located on private property, and used solely for the purpose of fire protection and which are regularly inspected by underwriters and which are installed in accordance with specifications approved by the department and which are maintained to the satisfaction of the department.

(Prior code § 7600.14.)

15.08.160 Private fire protection service connection.

“Private fire protection service connection” means the pipe or tubing and fittings necessary to conduct water from the water main to the customer's property line for private fire protection service. No meter is included in such service connection, but it does include a detector check meter for the determination of leakage and/or wrongful use of water from the private fire protection facilities.

(Prior code § 7600.15.)

15.08.165 Projected average daily water use.

“Projected average daily water use” means the estimate of the likely total annual water use of a premises divided by three hundred sixty-five days. The likely total annual water use shall be determined based on all information provided to the director as well as the use of standardized water use calculations as applied in San José Municipal Code Section 15.16.180 for the treatment plant connection fees. Due consideration shall be given by the director to the use of water conservation measures or devices proposed for use within the structure or development.

(Ord. 23975.)

15.08.170 Public fire hydrants.

“Public fire hydrants” means fire hydrants located in public streets or public easements or rights-of-way and which are owned, operated or controlled by a public agency and are connected to the municipal water system.

(Prior code § 7600.16.)

15.08.180 Public fire hydrant service connection.

“Public fire hydrant service connection” means the pipe or tubing and fittings necessary to conduct water from the water main to the public fire hydrant. No meter is included in such service connection.

(Prior code § 7600.17.)

15.08.190 Rules and regulations.

“Rules and regulations” means rules and regulations for the municipal water system established, adopted or approved by resolution of the city council.

(Prior code § 7600.18.)

15.08.200 Service area.

“Service area” means the Evergreen Water Service Area, the North San José Water Service Area, or the Alviso Water Service Area described in Part 2 of this chapter.

(Prior code § 7600.19.)

15.08.205 Special assessment proceeding.

“Special assessment proceeding” shall mean a proceeding whereby real property is made subject to an assessment or special tax, whether contingent or otherwise, which constitutes a lien on the property and which is used to finance public water facilities benefitting the property assessed.

(Ord. 23471.)

15.08.210 Standard service connection.

“Standard service connection” means the pipe or tubing, fittings, valves, meter and meter boxes necessary to conduct water from the water main to and through the meter or to the curb stop or shut-off valve on an unmetered service connection, to the point where connection is made to facilities of the customer other than public fire hydrant service connections and private fire protection service connections.

(Prior code § 7600.20.)

15.08.220 Water mains.

“Water mains” means all water lines owned by the city, including necessary appurtenances such as fittings, valves, valve housings, anchors, air vents, vacuum breakers, and blowoff facilities, but excluding backup facilities and service connections.

(Prior code § 7600.21.)

15.08.230 Water main area charge and frontage charge.

“Water main area charge and frontage charge” means the charge established by this chapter for the privilege of connecting premises to the municipal water system. Such charges may from time to time be increased or decreased by amendment of this chapter.

(Prior code § 7600.22.)

Part 2

SERVICE AREAS

Sections:

15.08.250 Service areas generally.

- c) Maintenance and operating costs of all District-owned and constructed facilities - determined by actual expenditures for such purposes from the District's accounting records.

This user charge would be applied to all groundwater extractions in the water charge zone and to all surface diversions of water conserved or imported by the District. The costs recovered by the user charge are made necessary because of the actual use of facilities constructed whether they be import or local conservation and distribution. Therefore, they should be paid for by the current water users.

7. The remaining expenditures that would be made in providing a supply of water result from construction of local facilities and consist of the capital cost of such items as local conservation reservoirs, aqueducts, regulating reservoirs, percolation ponds, and treatment plants. In such facilities some are deemed to contain excess capacity, while others are not. For example, the conservation reservoirs, our existing raw water aqueducts, and the percolation ponds are constructed to provide capacity for large flows required in years of heavy local rainfall. The capacity constructed into such facilities to handle these peak loads is necessary for the conservation and use of local water on a current basis. The cost of these facilities should, therefore, be charged to water users.

On the other hand, additional capacity built into treated water aqueducts, regulating reservoirs, and treatment plants is provided to assure availability of a water supply to undeveloped land in future years. Such excess capacity provides an economic benefit to such lands. Therefore, the excess capacity provided in facilities which produce or transmit a supply of treated water could, as an economic benefit, be properly charged to taxes within the service area for which excess capacity will be provided. The resulting recommendation is that the cost of such facilities be allocated between excess capacity and current use--with the costs allocated to current use being charged to the water users and the costs of excess capacity being charged to taxes within the service area. The combination of user charges and tax revenues would

does provide an economic benefit to the District and should be paid for by a county-wide tax which would equate to the tax rebate to those public agencies importing water through the Hetch Hetchy System. Since the capital costs of the Hetch Hetchy System, and the economic benefits resulting therefrom, are not easily determined and are subject to question, it is recommended that the tax rebate be determined in accordance with the presently accepted practice embodied in the pricing policy adopted March 4, 1963 and the amount of such rebate be added to the annual capital cost payments of the South Bay and Pacheco Aqueducts to determine the total county-wide tax levy for construction of import facilities.

4. Levy a county-wide tax to pay for the recreation benefits which are available from use by all County residents of the District's reservoirs and percolation ponds. This tax would be determined by appropriate allocations of the capital costs and maintenance and operations costs of all District-owned reservoirs and percolation ponds opened for recreation activities.
5. Levy a tax within the flood control zones for the flood control benefits resulting from the construction, operation and maintenance of the District's reservoirs. This tax would also be determined by following the same cost allocation procedure used for allocating costs to recreation.
6. Levy a basic water user charge to recover costs incurred for the benefit of current water users, i.e., costs related to consumptive use of water which costs include:
 - a) Water purchased from the State of California or the Bureau of Reclamation. This cost would be measured by the State's Delta Water Charge and the Bureau's prospective Storage Charge.
 - b) Maintenance and operating costs of import facilities. This cost would be measured by cost data supplied by the State and Federal Governments.

provide flexibility for the construction of needed facilities which presently cannot be supported with reasonable user charges during the early years of use. Tax revenues for such purposes would be limited to that required to fund the repayment of the capital costs of any excess capacity provided in such facilities.

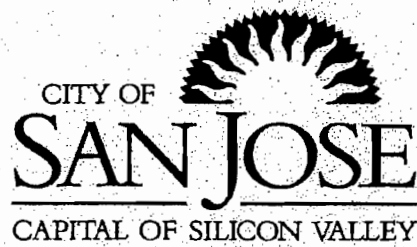
8. Levy a tax in the service area zone to pay the actual costs of water purchased to replenish our depleted underground supply - to retard and eliminate subsidence as well as provide an emergency supply in the underground reservoir for use during any unforeseen emergency. As stated earlier, the elimination of subsidence is of economic benefit to the area of service; and, as an economic benefit, taxes should be levied to pay for this cost. The same reasoning applies to the providing of an emergency supply of water. This cost would be measured by the State's Delta Water Charge and the Bureau's prospective Storage Charge, together with the related power costs.
9. Levy a treated water surcharge, which, when added to the basic water-user charge, would constitute the price of potable water delivered by the District from any of its facilities supplying potable water. This recommendation adopts the water resources management concept, and provides the necessary economic tool to obtain maximum utilization of our available water resources. The charge should be established at an amount that would prevent an overuse or under use of the groundwater basin. For any given rate period the charge could be lowered to discourage the use of groundwater supplies--or raised to encourage such use--while at the same time maintaining an approximate equality of total prices to the wholesale customers for groundwater and treated water.

Since the treated water surcharge is primarily an economic balancing tool, such revenue should be used to provide a proper balance between service area taxes and user charges, as well as establishing the proper relationship between treated water and groundwater charges.

Since the revenues derived from the treated water surcharge would be generated within the service area these sums could be used to lower the basic water charge or to reduce the service area taxes. Such revenues could

also be used to create or maintain a reserve to level the tax rates within a given rate period and to provide for unforeseen contingencies, or for minor construction.

10. Set water charges based on the above recommendations at a stable rate for 5-year rate periods.



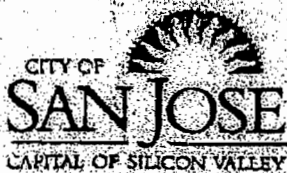
Water Supply Assessment
for
Coyote Valley Specific Plan

May 2006

APPENDIX D

Prepared for
CITY OF SAN JOSÉ
MUNICIPAL WATER SYSTEM
ENVIRONMENTAL SERVICES DEPARTMENT

Prepared by
Todd Engineers
2200 Powell Street, Suite 225
Emeryville, California 94608
510-595-2120 / Fax 510-595-2112
toddengineers.com



Environmental Services Department
MUNICIPAL WATER SYSTEM DIVISION

September 9, 2003

Adelio Quiogue
Department of Health Services
Drinking Water Field Operations Branch
2151 Berkeley Way, Room 458
Berkeley, CA 94704-1011

Subject: Permit Amendment, San Jose Municipal Water System No. W 4310020
North Coyote Valley Wells C-21, C-22 and C-23

Dear Mr. Quiogue:

In reference to Permit Amendment for San Jose Municipal Water System No. W4310020 dated June 17, 1988 and following your telephone conversation with Mansour Nasser on August 28, 2003, please find enclosed a copy of plans and specifications for North Coyote Valley Well Facilities. A copy of the Permit Amendment is also enclosed for your reference.

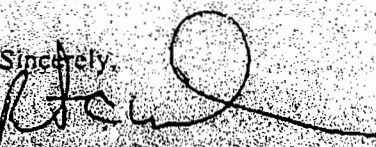
Please note that there is no permanent Chlorination System proposed for these wells. However, should there be a need to chlorinate, SJMWS has included provisions for temporary Chlorination. It should also be noted that there is an existing pump at Well C-23. Presently all services connected to the existing system are non-potable. The proposed well facilities at C-21 and C-22 will supply potable water along with existing Well C-23 to existing and future services. As part of pumping facilities, check valves are installed prior to discharge into the distribution system for all three wells. Furthermore, please note that SJMWS requires all its non-residential customers to install back flow at each metered service point, thus protecting the water mains and water wells from possible cross-connections.

As previously discussed, DSWAP documentation will be forwarded to you once it is completed. In addition, SJMWS will provide you the reports of water quality analysis once the pump stations are built and we can take samples.

Should you have any questions or require further information, please contact Jessica Zadeh or me at (408) 277-3671.

Post-It® Fax Note 7671		Date 5-16	# of pages 2
To MAUREN REILLY		From MANSOUR NASSER	
CO/DAPT		CO	
Phone #		Phone #	
Fax # 510-545-2112		Fax #	

Sincerely,


Robert C. Wilson, P.E.
Senior Civil Engineer
San Jose Municipal Water System

DEPARTMENT OF HEALTH SERVICES

151 BERKELEY WAY
BERKELEY, CALIFORNIA 94704
(415) 540-2158



June 17, 1988

City of San Jose
Municipal Water System
801 North First Street
San Jose, CA 95110

PERMIT AMENDMENT

Application of the City of San Jose, filed April 20, 1988, to construct three new municipal water supply wells in the North Coyote Valley service area of the City's Evergreen System, has been considered by the State Department of Health Services. The application was made in accordance with Section 4019 of the California Health and Safety Code. Enclosed is a copy of an engineering report, dated April 1988, prepared by our Public Water Supply Branch regarding your application.

It is the finding of the State Department of Health Services that Sections 4010 to 4039.5, inclusive, of the Health and Safety Code can be met by the City of San Jose-Evergreen System with the proposed improvements. This finding is based on the above-cited report. The domestic water supply permit granted to the City of San Jose-Evergreen System on December 20, 1962, is hereby amended to allow use of the new wells, subject to the following conditions:

1. Plans and specifications for the chlorination systems shall be submitted to the Department for review and approval prior to construction.
2. The Department shall be notified of the completion of the new wells and their chlorination systems to determine conformance with approved plans and specification.
3. Reports of complete water quality analyses shall be submitted for approval prior to the use of well water for domestic purposes.
4. The operation of the treatment systems shall be under the direct supervision of a Grade 2 or higher Water Treatment Operator.

TO: [illegible]
FROM: [illegible]
DATE: [illegible]
RE: [illegible]

State of California—Health and Human Services Agency
Department of Health Services

California
 Department of
 Health Services
SANDRA SHEWRY
 Director



ARNOLD SCHWARZENEGGER
 Governor

February 14, 2005

Ms. Mary Hoang, P.E.
 Operations and Maintenance Manager
 City of San Jose
 3025 Tuers Road
 San Jose, CA 95121

RECEIVED
 FEB 16 2005
CITY OF SAN JOSE
MUNICIPAL WATER SYSTEM

Dear Ms. Hoang:

COYOTE WELL C-23 USE APPROVAL
CITY OF SAN JOSE, EVERGREEN/EDENVALE WATER SYSTEM (W4310020)

This is to notify the City of San Jose's (City) Evergreen/Edenvale water system of the results of our review Coyote Well C-23 for use approval.

Pursuant to the conditions of the permit amendment to the Domestic Water Supply Permit of the City, dated June 17, 1988, for the addition and operation of the Coyote wells, the City has submitted the plans and specifications and water quality test results for the Coyote Well C-23. The Department has reviewed these documents and finds that Coyote Well C-23 conform to the accepted plans and specifications for this water facility. In addition, the results of the water quality tests for the wells were found meeting the drinking water standards for regulated and unregulated water constituents. Based on these, the Department hereby allows the use of Coyote Well C-23.

Please note that use approval for the other components of the Coyote improvement project, namely, Coyote Wells C-21 and C-22 and Coyote Water Tank, was granted by the Department through a letter dated October 25, 2004. As is indicated in that Department letter, non-chlorination of the Coyote wells, including Well C-23, was allowed for the present time. However, the letter also indicated that future application of chlorination (disinfection) to the wells, voluntary or as required by the Department, would require the City to formally apply for a permit amendment to its Domestic Water Supply Permit.

Ms. Mary Hoang, P.E.

Page 2

February 14, 2005

If you have any questions regarding this letter, please contact Adelio H. Quiogue at (510) 540-3100.

Sincerely,



Eric Lacy, P.E.
District Engineer
Santa Clara District
Drinking Water Field Operations Branch

cc: Santa Clara County Health Department
Environmental Health Division

Mr. Jessica Zadeh, P.E.
City of San Jose
3025 Tuers Road
San Jose, CA 95121

Mr. Robert Wilson, P.E.
City of San Jose
3025 Tuers Road
San Jose, CA 95121

State of California—Health and Human Services Agency
Department of Health Services

California
 Department of
 Health Services
SANDRA SHENRY
 Director



ARNOLD SCHWARZENEGGER
 Governor

December 1, 2004

RECEIVED
 DEC 3 - 2004

CITY OF SAN JOSE
MUNICIPAL WATER SYSTEM

Coy 21 & 22

Permit

Ms. Jessica K. Zadeh, P.E.
 Associate Civil Engineer
 San Jose Municipal Water System
 3025 Tuers Road
 San Jose, CA 95121

Dear Ms. Zadeh:

COYOTE WELL SOURCE AND TCR MONITORING PLANS APPROVAL
CITY OF SAN JOSE - EVERGREEN WATER SYSTEM (No. 4310020)

The City of San Jose-Evergreen Water System (City) has submitted, through its letter dated November 8, 2004, the source monitoring plans for its Coyote Wells (Nos. 21, 22, and 23) and a revision to the City's Total Coliform Rule (TCR) monitoring plan for the addition of the Coyote service area for Department review. The use of Coyote Well Nos. 21 and 22 was recently approved by the Department. The use approval for Coyote Well No. 23 remains under consideration by the Department as the City has yet to submit the complete initial water quality test results for the well.

Upon review, the Department finds the source monitoring plans for Coyote Well Nos. 21, 22, and 23 acceptable. Each plan presents the monitoring schedule for the regulated primary and secondary drinking water constituents including general minerals, general physical, inorganic chemicals, volatile and synthetic organic chemicals, and the radionuclides including Ra-228. Further, the Department finds the revised TCR monitoring plan as acceptable. The revised plan covers the Coyote service area through the collection of one routine sample from a designated site every month. The plan also presents the associated set of repeat sampling sites.

With this review and acceptance, implementation of the Coyote Wells' source monitoring plans and the revised TCR monitoring plan shall be effective immediately.

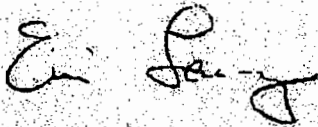
Ms. Jessica K. Zadeh, P.E.

Page 2

December 1, 2004

If you have any questions, please contact Adelfo B. Quinque at (510) 540-3100.

Sincerely,



Eric Lacy, P.E.
District Engineer
Santa Clara District
Drinking Water Field Operations Branch

cc: Ms. Mary Hoang, P.E.
San Jose Municipal Water System
3025 Tuers Road
San Jose, CA 95121

Santa Clara County Health Department
Environmental Health Division

15.08.260 Alviso water service area.

15.08.265 Edenvale water service area.

15.08.270 Evergreen water service area.

15.08.275 Coyote water service area.

15.08.280 North San José water service area.

15.08.290 Change in size of areas.

15.08.300 Connections for property located outside water service area.

15.08.250 Service areas generally.

The service areas of the municipal water system consist of those areas described in Sections 15.08.260 through 15.08.280.

(Prior code § 1607(part).)

15.08.260 Alviso water service area.

The Alviso water service area consists of all that territory situate within the boundaries of the former city of Alviso as said boundaries existed immediately prior to the consolidation of said city of Alviso with the city of San José, but only so long as said territory remains part of the city of San José.

(Prior code § 7601(3).)

15.08.265 Edenvale water service area.

The Edenvale water service area consists of all that territory situated within the boundaries of the city, as said boundaries now exist or may be changed, which lies within the boundaries of that area designated "Edenvale Water Service Area" shown on that certain map entitled, "San José Municipal Water System-Edenvale Water Service Area-Coyote Water Service Area," on file in the office of the city clerk.

(Ord. 22278.)

15.08.270 Evergreen water service area.

The Evergreen water service area consists of all that territory situate within the boundaries of the city, as said boundaries now exist or may be changed, which lies within the boundaries of that area designated "Evergreen Water Service Area" shown on that certain map entitled "San José Municipal Water System-Evergreen Water Service Area," on file in the office of the city clerk, and all that territory situate within the service area of the Evergreen Water Co., Inc., a California corporation, at the time of acquisition thereof by the city.

(Prior code § 7601(1).)

15.08.275 Coyote water service area.

The Coyote water service area consists of all that territory situated within the boundaries of the city, as said boundaries now exist or may be changed, which lies within the boundaries of that [area] designated "Coyote Water Service Area" shown on that certain map entitled, "San José Municipal Water System-Edenvale Water Service Area-Coyote Water Service Area," on file in the office of the city clerk.

(Ord. 22278.)

15.08.280 North San José water service area.

The North San José water service area consists of all that territory situate within the boundaries of the city, county of Santa Clara, as said boundaries exist now or may be changed, which lies within the hereinafter described area:

Generally the area north of Brokaw Road, between Guadalupe River and Coyote Creek, to the northerly boundary of Santa Clara County, more particularly described as follows:

Beginning at a point where the Guadalupe River crosses the Bayshore Freeway (101), said point being the point of beginning of this description; thence continuing generally northerly along said centerline of the Guadalupe River to a point southerly of the Mountain View-Alviso Road, where the city of San José city limit line intersects the Guadalupe River; thence along the city of San José city limit line generally north and northwest to a point in the centerline of Coyote Creek which is a common point in the boundaries of the city of San José, city of Sunnyvale, county of Santa Clara, and county of Alameda; thence generally easterly along the centerline of Coyote Creek being also the common boundary between the county of Santa Clara and the county of Alameda to a point which is a common point in the boundaries of the county of Santa Clara, county of Alameda, the city of Fremont, and the city of Milpitas; thence generally southerly along the centerline of Coyote Creek to a point in the centerline of Nimitz Freeway; thence along the centerline of Nimitz Freeway to the centerline of Brokaw Road; thence generally west along centerline of Brokaw Road westerly to the true point of beginning, excepting therefrom all that territory located within the boundaries of the former city of Alviso as said boundaries existed immediately prior to the consolidation of said city of Alviso with the city of San José.

(Prior code § 7601(2).)

15.08.290 Change in size of areas.

The city council may from time to time enlarge or reduce the size of said water service areas by amendment of the provisions set forth in this Part 2.

(Prior code § 7601.1.)

15.08.300 Connections for property located outside water service area.

A. Notwithstanding any other provisions of Chapter 15.08 to the contrary, the provisions of this section shall apply to and control applications to connect property located outside the boundaries of the service area of the San José municipal water system.

B. Application to connect property located outside the boundaries of the service area of the San José municipal water system, and outside the boundaries of the city, may be granted only if all of the following conditions exist:

1. There is a failure of an existing water supply to the property and there is no other source of water supply available to the property; and
2. The applicant is the owner of the property to be served or a duly organized mutual water company that is a state small water system, as defined in the California Water Code; and
3. The applicant will own and be responsible for all costs of construction, operation and maintenance of facilities located outside the service area of the San José municipal water system.
4. If the property to be served is located adjacent to or coterminous to the boundaries of the city, the applicant has filed an application for annexation of the property to be served into the city of San José, and the applicant has waived any and all rights to a San José municipal water system water connection in the event annexation of applicant's property does not take place.
5. Water served by the municipal water system will only be used to serve uses existing on the property at the time of commencement of the service.

C. Application to connect property located outside the boundaries of the service area of the San José municipal water system, and within the boundaries of the city, may be granted only if all of the following conditions exist:

1. There is a failure of an existing water supply to the property or there is no other source of water supply available to the property; and
2. The applicant is the owner of the property to be served or a duly organized mutual water company that is a state small water system, as defined in the California Water Code; and
3. The applicant will own and be responsible for all costs of construction, operation and maintenance of facilities located outside the service area of the San José municipal water system.

D. The granting of a water connection to property located outside the service area of the San José municipal water system is hereby declared to be a mere privilege revocable at the pleasure of the council, and this privilege may be granted or withheld in the absolute discretion of the city council.

E. Nothing contained herein shall be construed as limiting the discretionary power of the city. The council, in the exercise of its discretion, specifically reserves the right to require the fulfillment of conditions in addition to those specified herein. The council expressly reserves the right to withhold permission in any case where in its opinion the best interests of the people of the city will be served thereby.

(Prior code § 7601.2; Ords. 18670, 25962.)

Part 2.5

RATES AND CHARGES FOR POTABLE WATER

SERVICE

Sections:

15.08.310 Purpose of rates and charges.

15.08.320 Establishment of potable rates and charges.

15.08.310 Purpose of rates and charges.

The purpose of the provisions of this Part 2.5, and the potable water rates and charges to be established pursuant to this Part 2.5, is to generate revenue sufficient to make the expenditures required under subsections A., B. and C. of Section 4.80.630 of this code and to generate such additional revenue as may be allowable under subsection D. of Section 4.80.630 of this code. Any rate increase for the express purpose of increasing transfers to the general fund to meet the maximum amounts allowed in Section 4.80.630D.2. is prohibited.
(Ord. 26903.)

15.08.320 Establishment of potable rates and charges.

A. Rates and charges for potable water service, including meter charges and quantity rates, shall be established from time to time by resolution of the city council.

B. Rates and charges for potable water service may vary by water service area, and by zone within a water service area.

C. Written notice of any proposed increase in rates and charges for potable water services shall be provided in advance of approval of any rate or charge increase, as follows:

1. Notice shall be published in a newspaper of general circulation at least fifteen days in advance of city council consideration of such increase.

2. Notice shall be sent directly to the customer with the customer's regular water bill if a bill is due to be sent to the customer between the time an increase is proposed and the increase is scheduled to be considered by the city council.

(Ord. 26903.)

Part 3

DESCRIPTION OF SERVICE

Sections:

15.08.350 Quality of water.

15.08.360 Quantity of supply - Continuity.

15.08.370 Quantity of supply - Measurement.

15.08.380 Normal operating pressure.

15.08.390 Apportionment of supply during times of shortage.

15.08.400 Scheduled interruptions.

15.08.410 Emergency interruptions.

15.08.350 Quality of water.

Whenever furnished for human consumption or for domestic uses, the city will endeavor to provide water that is wholesome, potable, in no way harmful or dangerous to health and, insofar as practicable, free from objectionable odors, taste, color and turbidity.

(Prior code § 7602.2.)

15.08.360 Quantity of supply - Continuity.

The city will endeavor to supply water dependably and safely in adequate quantities to meet the reasonable needs and requirements of customers. It cannot, however, guarantee complete freedom from interruption.

(Prior code § 7602.)

15.08.370 Quantity of supply - Measurement.

All water supplied to customers will be measured by means of suitable standard water meters, unless flat rates are in effect. A cubic foot will be the unit of measurement.

(Prior code § 7602.3.)

15.08.380 Normal operating pressure.

The city will endeavor to maintain normal operating pressures in the municipal water system of not less than twenty-five pounds per square inch nor more than one hundred fifty pounds per square inch at the service, except that during periods of maximum demand the pressure may be less than twenty-five pounds per square inch and during periods of minimum demand pressures may exceed one hundred fifty pounds per square inch. Additionally, in certain areas of the municipal water system where full development of the system has not occurred, pressures of less than twenty-five pounds per square inch may be encountered. It shall be the applicant's responsibility to obtain information from the department concerning the water pressures to be encountered in the area to be served. It shall also be the applicant's responsibility to provide and maintain any pressure-reducing devices required.

(Prior code § 7602.1.)

15.08.390 Apportionment of supply during times of shortage.

During times of threatened or actual water shortage, the city will apportion the available water supply among its customers in the manner that appears most equitable under circumstances then prevailing, and with due regard to public health and safety.

(Prior code § 7602.6.)

15.08.400 Scheduled interruptions.

Whenever it is necessary to schedule an interruption to its service, the department will, where feasible, notify all customers to be affected by the interruption, stating the approximate time and anticipated duration of the interruption. Scheduled interruptions will be made at such hours as will provide least inconvenience to the customers consistent with reasonable water service operation.

(Prior code § 7602.5.)

15.08.410 Emergency interruptions.

The city will make all reasonable efforts to prevent interruptions to service and when such interruptions occur will endeavor to reestablish service with the shortest possible delay consistent with the safety to its customers and the general public.

(Prior code § 7602.4.)

Part 4

APPLICATION FOR CONNECTION

Sections:

15.08.450 Connection without permit or agreement prohibited.

15.08.460 Contents of application.

15.08.470 Permit - Issuance conditions.

15.08.480 Individual service connections required when.

15.08.490 Service to multiple units on same premises.

15.08.500 Resale of water.

15.08.450 Connection without permit or agreement prohibited.

A. No person shall make connection, either directly or indirectly, to the municipal water system without first making an application therefor and either obtaining a permit from the director or making such connection pursuant to a main extension agreement.

B. Only premises located within the water service areas may be served from the municipal water system.

(Prior code § 7603.)

15.08.460 Contents of application.

Applications for connection to the municipal water system shall be made in writing to the department, shall be signed by the applicant, and shall contain the

following:

- A. Date of application;
- B. Location and description of premises to be served;
- C. Date applicant will be ready for service;
- D. Purpose for which service is to be used;
- E. Address of applicant;
- F. Whether applicant is owner, tenant or agent;
- G. Such other information as the department may reasonably require.

(Prior code § 7603.1.)

15.08.470 Permit - Issuance conditions.

Except in those instances where an agreement is required by other provisions of this chapter, and except where the director determines that there is insufficient water supply to provide adequate service to premises or that the water system master plans do not provide for the requested service to such premises, if the applicant has paid all fees and charges and done all other things required by the rules and regulations and by this chapter, the director shall issue a written permit for such connection.

(Prior code § 7603.2.)

15.08.480 Individual service connections required when.

Separate premises under a single control or management will be provided water service through separate individual service connections unless the department in its sole discretion elects otherwise.

(Prior code § 7603.3.)

15.08.490 Service to multiple units on same premises.

A. Separate houses, buildings or living or business quarters on the same premises or on adjoining premises under a single control or management may be served at the option of the department in its sole discretion by either of the following methods:

1. Through separate service connections to each or any such separate house, building, or living or business quarters;
2. Through a single service connection to supply the entire premises.

B. The responsibility for payment of charges for all service furnished to combined units through a single service connection, in accordance with these rules, must be assumed by the applicant.

(Prior code § 7603.4.)

15.08.500 Resale of water.

Except by special agreement with the city upon such terms as the city elects, no person shall resell any of the water provided from the municipal water system nor shall such water be transmitted to premises or used upon premises other than those specified in such person's application for service.

(Prior code § 7603.5.)

**Part 5
FIRE HYDRANTS**

Sections:

15.08.550 Taking water from public fire hydrants - Permit and other requirements.

15.08.550 Taking water from public fire hydrants - Permit and other requirements.

No person shall take water from a public fire hydrant connected to the municipal water system, except a public agency, charged with the duty of providing fire protection service, within whose geographical jurisdiction such fire hydrant is located, without first obtaining a permit, paying all fees and charges, and otherwise complying with applicable rules and regulations therefor.

(Prior code § 7603.20.)

**Part 6
SERVICE CONNECTIONS**

Sections:

15.08.600 Standard service connections - Fees and charges -Installation time.

15.08.610 Public fire hydrants - Fees and charges - Installation by city when - Location.

15.08.620 Private fire protection service connection - Fees and charges - Installation by city.

15.08.630 Private fire protection service connection - Using water for other purposes prohibited.

15.08.640 Location of service connections.

15.08.650 Location for delivery of water.

15.08.660 Connection remains city property when.

15.08.670 Customer responsibilities.

15.08.680 City access to customer premises.

15.08.690 Loss or damage - City and customer responsibility.

15.08.600 Standard service connections - Fees and charges - Installation time.

A. An applicant for a standard service connection, other than an applicant who installs a standard service connection pursuant to a main extension agreement, shall pay to the city the following:

1. The area charge and frontage charge prescribed by Part 7 of this chapter;
2. The cost of installation of each standard service connection including the actual cost of the service lateral and the cost of restoration of roadway and sidewalks, plus fifteen percent thereof for engineering services, plus the applicable charges as set forth in subsection A. of Section 15.08.820 for the meter.
3. The major water facilities fee described in Part 10 of this chapter.

B. Prior to installation of the standard service connection, the applicant shall deposit a sum sufficient to pay the costs described in paragraph A.2. of this section as estimated by the director. Upon completion of installment, any funds remaining from the deposit shall be returned to the applicant. If during installation the director determines that funds in addition to the initial deposit are required, notice of the additional funds required shall be sent to the applicant. The applicant shall pay to the city within ten days of dispatch of the notice such additional funds as are set forth in the notice.

C. In areas within a service area which do not have dedicated front or rear streets or appropriate easements, standard service connections and private fire protection service connections shall be installed at a convenient point at or near the applicant's property.

(Prior code § 7604; Ord. 23975.)

15.08.610 Public fire hydrants - Fees and charges - Installation by city when - Location.

A. Any person who is obligated by any law or ordinance, resolution, rule or regulation to provide a public fire hydrant, or who requests that such public fire hydrant be provided, or requests the relocation of an existing public fire hydrant (other than an applicant who is required to install a public fire hydrant service connection pursuant to a main extension agreement) shall pay to the city the following:

1. For the public fire hydrant service connection (which does not include a meter) actual cost plus fifteen percent thereof for engineering costs incurred by city;
2. For the public fire hydrant installed, actual cost incurred by the city plus ten percent thereof for handling and installation, or if relocation of an existing hydrant actual cost of installation of the fire hydrant.

B. The public fire hydrant and service connection shall be installed by city.

C. Payment for the service connection and fire hydrant shall be made in advance of installation on the basis of estimates prepared by the department. At the completion of the installation, if the amount paid exceeds the cost of installation and engineering fees, such excess shall be refunded to the person who made payment; if the cost of installation plus engineering exceeds the amount deposited, such person shall upon demand pay such excess to the city.

D. Public fire hydrants shall be located and installed, maintained and inspected in accordance with the requirements of the department. The location of all public fire hydrants shall be approved by the chief of the fire department of the city.

(Prior code § 7604.1.)

15.08.620 Private fire protection service connection -Fees and charges - Installation by city.

A. An applicant for a private fire protection service connection, other than an applicant who installs a private fire protection service connection pursuant to a main extension agreement, shall pay to the city the following fees and charges:

1. The area charge and frontage charge prescribed by Part 7, if not paid pursuant to other provisions of this chapter;
2. The actual cost of installation of the service connection plus fifteen percent thereof for engineering costs incurred by city.

B. Payment for said service connection shall be made in advance of installation on the basis of estimates prepared by the department. At the completion of the installation, if the amount paid exceeds the cost of installation and engineering fees, such excess shall be refunded to the person who made payment; if the cost of installation plus engineering exceeds the amount deposited, such person shall upon demand pay such excess to city.

C. The city shall furnish and install such private fire protection service connections within a reasonable time after the payment of said fees and charges and issuance of a connection permit, and subject to the availability of materials.

(Prior code § 7604.2.)

15.08.630 Private fire protection service connection -Using water for other purposes prohibited.

No person shall use water from a private fire protection service connection except for fire protection purposes.

(Prior code § 7604.3.)

15.08.640 Location of service connections.

A. In urban areas within a service area, and with dedicated front or rear streets, or appropriate easements, standard service connections and private fire protection service connections will be installed at a convenient place within such roadway or easement or inside the customer's property line, as specified by the department.

B. In areas within a service area which do not have dedicated front or rear streets or appropriate easements, standard service connections and private fire protection service connections shall be installed at a convenient point at or near the applicant's property.

C. All service connections shall be readily accessible from the public street and no service connection shall be installed such that the meter will be more than twenty-five feet from a traveled way over which water system maintenance vehicles can traverse without difficulty or damage to property. If any encroachment permit is needed to install such service connection, the applicant shall obtain such encroachment permit or assist the city in obtaining such encroachment permit. All installations shall be approved as to type, size and location by the director.

(Prior code § 7604.4.)

15.08.650 Location for delivery of water.

The service connection will determine the point of delivery of water service to the customer.

(Prior code § 7604.5.)

15.08.660 Connection remains city property when.

Whenever a service connection is installed wholly or partially upon a customer's premises, the service connection shall remain the property of city. No rent or other charge will be paid by the city where such service connections are located on a customer's premises.

(Prior code § 7604.7.)

15.08.670 Customer responsibilities.

A. It shall be an applicant's responsibility to furnish and install the necessary piping to make the connection from a standard service connection or a private fire protection service connection to the place of consumption, and applicant shall keep such piping in good repair and in accordance with any requirements imposed by this chapter or by rules and regulations adopted by city. In addition, applicant shall furnish and install a main valve on the piping between such service connection and the point of customer's use.

B. The customer shall not install any quick-closing valve or other equipment or devices upon his premises which will cause excessive pressure surges in the water mains.

C. The customer shall notify the department in writing upon making any change in the area being serviced or upon making any material change in the size, character or extent of the equipment or operations for which the water service is utilized.

D. The customer shall be responsible for obtaining from the city information concerning the water pressures to be encountered in the area to be served, and for providing and maintaining any pressure-controlling devices required. If a customer receiving service at the city main or service connection must by means of a pump of any kind elevate or increase the pressure of the water received, the pump shall not be

attached to any pipe directly connected to the city's main or service pipe. Such pumping or boosting of pressure shall be done from a sump, cistern or storage tank which may be served by, but not directly connected with the city's distribution facilities.

(Prior code § 7604.6.)

15.08.680 City access to customer premises.

The city and its authorized representatives shall at all reasonable hours have access to meters, service connections and other water facilities owned by city which may be located on customer's premises for purposes of installation, maintenance, operation, removal and other purposes incidental to the operation of the municipal water system. The customer's water system shall be open for inspection at all reasonable times to authorized representatives of city.

(Prior code § 7604.8.)

15.08.690 Loss or damage - City and customer responsibility.

- A. The city will not be responsible for any loss or damage caused by any negligence or wrongful act of a customer or of a customer's authorized representatives in installing, maintaining, operating or using any or all appliances, facilities or equipment for which service is supplied.
- B. The customer will be held responsible for damage to the city's meters and other property resulting from the use or operation of appliances and facilities on customer's premises, including but not limited to damage caused by steam, hot water or chemicals.

(Prior code § 7604.9.)

**Part 7
FEES AND CHARGES**

Sections:

15.08.700 Water main area charge and frontage charge - Designated - Procedure for determination.

15.08.710 Adjustments and exceptions.

15.08.720 Amendment of fees and charges.

15.08.700 Water main area charge and frontage charge -Designated - Procedure for determination.

Any person who makes application for water service from the municipal water system, and other than in situations requiring extension of water mains, shall as a condition precedent to the issuance of a connection permit, or if made pursuant to a main extension agreement as a condition of such agreement, and if the main extension is needed to serve a proposed subdivision as a condition precedent to the recordation of a final subdivision map, pay to city the following water main area

charge and frontage charge:

A. Area charge: Five hundred dollars per acre for premises to be served other than public school, three hundred seventy-five dollars per acre for public school premises.

B. Frontage charge:

1. In areas where the city of San José fire department has determined fire flows required under Chapter 17.16, Fire Protection for New Construction to be four thousand gallons per minute (GPM) or less:

a. Existing six-inch diameter or smaller water lines, four dollars and fifty cents per front foot of premises fronting on existing lines.

b. Existing eight-inch diameter or larger water lines, six dollars per front foot of premises fronting on existing lines.

2. In areas where the city of San José fire department has determined fire flows as under Chapter 17.16, Fire Protection for New Construction to be over four thousand gallons per minute (GPM):

a. Existing six-inch diameter or smaller water lines, four dollars and fifty cents per front foot of premises fronting on existing lines.

b. Existing eight-inch diameter, six dollars per front foot of premises fronting on existing lines.

c. Existing ten-inch diameter water lines, seven dollars per front foot of premises fronting on existing lines.

d. Existing twelve-inch diameter or larger water lines, ten dollars per front foot of premises fronting on existing lines.

(Prior code § 7605; Ords. 20229, 21620, 21754.)

15.08.710 Adjustments and exceptions.

Whenever the city council finds that the application of the area and frontage charges established by this part to a given premises to be unfair or inequitable or would result in unnecessary hardships because of the unusual circumstances peculiar to such premises, the council may, by resolution, grant an adjustment to or exception from the area and frontage charge applicable to such premises which would be fair and equitable for land concerned.

(Prior code § 7605.01.)

15.08.720 Amendment of fees and charges.

The city reserves the right to increase or decrease or otherwise alter or amend the fees and charges set forth in this part by amendment hereof without liability to any applicant or other person and further reserves the right to impose additional and different fees and charges.

(Prior code § 7605.2.)

Part 8 MAIN EXTENSIONS

Sections:

- 15.08.750 **Limitations on extensions.**
- 15.08.760 **Preparation of cost estimates, plans and specifications.**
- 15.08.770 **Costs - Responsibility of applicant - Deposit required when.**
- 15.08.780 **Contract provisions designated.**
- 15.08.790 **Ownership, design and construction of facilities.**
- 15.08.800 **Area and frontage charges for extensions - Excess costs.**
- 15.08.810 **Engineering costs.**
- 15.08.820 **Charges for service connections - Where applicant installs main extension.**
- 15.08.830 **Charges for service connections - Where city installs main, applicant paying actual cost.**
- 15.08.840 **Reimbursement - Amounts credited.**
- 15.08.850 **Reimbursement credits for city work authorized when.**
- 15.08.860 **Adjustments and exceptions - Council authority.**
- 15.08.870 **Credits for assessments.**

15.08.750 **Limitations on extensions.**

Extensions of the water mains in the water service areas of the municipal water system shall be limited to those main extensions which conform to the master plans for water service for the respective water service area, and further to those main extensions which will provide sufficient and adequate water service to premises proposed to be served. Such extensions shall be further limited if the city council shall determine that the proposed extension is not currently feasible for construction and operation as part of the municipal water system.

(Prior code § 7606.)

15.08.760 **Preparation of cost estimates, plans and specifications.**

A. Upon written request of an applicant for water service, in those situations where a water main extension is required to serve the applicant's premises, the department shall prepare and provide to such applicant, without charge, a preliminary layout of the main extension, showing sizes and location and rough estimates of the costs of installation and applicable charges and fees.

B. Upon written request of each applicant therefor, the department will prepare detailed plans and specifications for such main extensions. Such written request must be accompanied by a deposit in an amount equal to the cost of preparation of such plans and specifications as estimated by the department. The department shall make such plans and specifications and cost estimates available to such applicant within a reasonable time after such written request is made and said sum is so deposited, and after such plans and specifications have been approved by the city council. If the extension is to include oversized facilities, appropriate details shall be set forth in the plans, specifications and cost estimates.

C. In the event a main extension contract is executed by the applicant and the city within one hundred eighty days after the city council has approved such detailed plans and specifications, said deposit shall be credited against costs of engineering required to be paid pursuant to Section 15.08.810.

D. When detailed plans, specifications and cost estimates are requested from the department, the applicant for a main extension shall furnish three copies of a map to a suitable scale showing the street and lot layouts and, when requested by the department, contours or other indication of the relative elevation of the various parts of the area to be developed. If changes are made subsequent to the presentation of this map by the applicant, and these changes require additional expense in revising plans, specifications and cost estimates, this additional expense shall be borne by the applicant, and he shall deposit an additional sum to cover the cost thereof, which additional sum shall not be credited against any payment required to be made by Section 15.08.810.

E. In lieu of the preparation of detailed plans and specifications by the department, an applicant may submit to the department plans and specifications prepared by licensed engineers (at applicant's sole cost and expense) conforming to the preliminary layout prepared by the department, provided that such plans shall be subject to the approval of the department and the city council.

(Prior code § 7606.1.)

15.08.770 Costs - Responsibility of applicant - Deposit required when.

A. If a water main extension is required, as determined by the department, to serve the premises of an applicant for water service, the city may in its sole discretion require such main extension and shall require the applicant to pay the cost of service connections. Such main extensions and installation of service connections may be accomplished in city's sole discretion either:

1. By contract between the city and applicant whereby applicant installs all such water mains and service connections (except meters) and pays the engineering costs and the fees and charges hereinafter prescribed; or

2. By contract between applicant and city whereby city agrees to install the main extensions and service connections and applicant pays to city the actual cost of installation of said water mains and of said service connections and engineering costs, together with the fees and charges hereinafter prescribed.

B. The city may, but will not be required to, make extensions under this rule in easements or rights-of-way where final grades have not been established, or where street grades have not been brought to those established by the city. If extensions are

made when grades have not been established and there is a reasonable probability that the existing grade will be changed, the department shall require that the applicant for the main extension deposit, at the time of execution of the main extension agreement, the estimated net cost of relocating, raising or lowering facilities upon establishment of final grades. Adjustment of any difference between the amount so deposited and the actual cost of relocating, raising or lowering facilities shall be made within ten days after the department has ascertained such actual cost. The net deposit representing actual cost is not subject to refund. The entire deposit related to the proposed relocation, raising or lowering shall be refunded when such displacements are determined by the department to be not required.

(Prior code § 7606.2.)

15.08.780 Contract provisions designated.

The main extension contract referred to in this part shall provide for the following:

- A. Payment by applicant to city of all applicable fees and charges and deposits specified in this part. If the fees and charges required to be paid by an applicant are on an actual cost basis, he shall deposit the amount of such cost as estimated by the department, plus applicable engineering fees, with provision made for adjustment upon completion of the installation and determination of actual cost.
- B. Conveyance to city by the owner of the premises to be served of all rights vested in such owner to take water from any source, including but not limited to the underground basin and authorization to city to take such water from said source.
- C. The purchase by city at any time at city's option of all rights of an applicant, its successors or assigns, in and to any reimbursement provided for in any main extension contract, by paying to applicant, its successors or assigns, any amount remaining to be reimbursed to said applicant.
- D. Where an applicant is required to install the main extension, filing by applicant with the city of a good and sufficient bond, securing the faithful performance by the applicant of all work and improvements shown on the plans and specifications, and also a good and sufficient bond securing the payment by the applicant of all bills for labor and materials incurred in the construction of any and all of said improvements, the amount of said bonds to equal the estimated cost of said work and improvements. In the event the applicant is, concurrently with the agreement for water main extensions, required to contract with the city to make other public improvements, city may permit applicant to file with city a single faithful performance bond and a single labor and material bond covering the improvements required by the contract required by this section and such other improvements. Said bonds shall be filed with city prior to the release of a subdivision map which includes the premises for which service is requested.
- E. Furnishing by applicant of a policy or policies of liability insurance, paid for by applicant, which policy or policies shall meet the requirements for insuring the city of San José, its officers and employees, which are established by resolution of the city council. In the event the applicant is concurrently with the agreement for water main extensions required to contract with the city to make other public improvements, city may permit a single policy of insurance covering all of said work to be filed. Said policy shall be filed prior to the release of any subdivision map

which includes the premises for which service is requested.

F. That all water mains and service connections installed pursuant to any main extension agreement shall be the property of the city.

G. That it shall be applicant's responsibility to provide city, in such form as approved by city, with easements, rights-of-way, encroachment permits or other rights in real property necessary, as determined by city, for the construction of main extensions, service connections and their appurtenances.

(Prior code § 7606.3; Ord. 19637.)

15.08.790 Ownership, design and construction of facilities.

All main extensions and service connections installed pursuant to a main extension agreement shall be the sole property of the city. The size, type, quality and location of water mains shall be as specified by the city, and shall be installed to the satisfaction of the director of public works.

(Prior code § 7606.4.)

15.08.800 Area and frontage charges for extensions -Excess costs.

Applicants for water service who are required by contract between the applicant and the city to construct or pay for the cost of construction of water main extensions shall pay the area charges and frontage charges prescribed in Section 15.08.700, less excess costs, if any, computed by application of the following designated unit prices to the quantities of water mains shown on the plans and specifications theretofore approved by the city council:

I. In areas where the city of San José fire department has determined fire flows required under Chapter 17.16, Fire Protection for New Construction to be four thousand gallons per minute (GPM) or less:

A. Excess costs for water mains constructed from existing system to applicant's premises, the following unit prices:

1. 6" diameter pipelines-\$9.00 per lineal foot of pipe.
2. 8" diameter pipelines-\$12.00 per lineal foot of pipe.
3. 10" diameter pipeline-\$16.00 per lineal foot of pipe.
4. 12" diameter pipeline-\$20.00 per lineal foot of pipe.
5. 18" diameter pipeline-\$30.00 per lineal foot of pipe.

B. Excess costs for water mains constructed along the boundaries of the land proposed to be served and designed and intended to have service connections attached directly to them not only from applicant's premises, but also from other premises abutting the street, right-of-way or easement in which said water lines are to be installed:

1. 6" diameter pipelines-\$4.50 per lineal foot of pipe.

- 2. 8" diameter pipelines-\$6.00 per lineal foot of pipe.
- 3. 10" diameter pipeline-\$10.00 per lineal foot of pipe.
- 4. 12" diameter pipeline-\$14.00 per lineal foot of pipe.
- 5. 18" diameter pipeline-\$24.00 per lineal foot of pipe.

C. Excess costs for water mains in excess of eight inches in diameter to be constructed to serve applicant's premises on both sides of said pipelines:

- 1. 10" diameter pipelines-\$4.00 per lineal foot of pipe.
- 2. 12" diameter pipelines-\$8.00 per lineal foot of pipe.
- 3. 18" diameter pipeline-\$18.00 per lineal foot of pipe.

II. In areas where the city of San José fire department has determined fire flows as required under Chapter 17.16, Fire Protection for New Construction to be over four thousand gallons per minute (GPM):

A. Excess costs for water mains constructed from existing system to applicant's premises, the following unit prices:

- 1. 6" diameter pipelines-\$9.00 per lineal foot of pipe.
- 2. 8" diameter pipelines-\$12.00 per lineal foot of pipe.
- 3. 10" diameter pipeline-\$16.00 per lineal foot of pipe.
- 4. 12" diameter pipeline-\$20.00 per lineal foot of pipe.
- 5. 18" diameter pipeline-\$30.00 per lineal foot of pipe.

B. Excess costs for water mains constructed along the boundaries of the land proposed to be served and designed and intended to have service connections attached directly to them not only from applicant's premises, but also from other premises abutting the street, right-of-way or easement in which said water lines are to be installed:

- 1. 12" diameter pipeline-\$10.00 per lineal foot of pipe.
- 2. 18" diameter pipeline-\$20.00 per lineal foot of pipe.

C. Excess costs for water mains in excess of twelve inches in diameter to be constructed to serve applicant's premises on both sides of said pipelines:

- 1. 18" diameter pipeline-10.00 per lineal foot of pipe.

(Prior code § 7606.5; Ords. 20229, 20953, 21620.)

15.08.810 Engineering costs.

Engineering costs for main extensions required to be paid by an applicant

pursuant to the provisions of this part shall be fifteen percent of the cost (computed in accordance with the following unit prices) of the main extension installed or paid for by applicant in accordance with Section 15.08.770; provided, that if the applicant shall submit plans and specifications pursuant to subdivision E of Section 15.08.760, the engineering costs required to be paid by applicant to city shall be 6.5 percent of the cost computed in accordance with the following unit prices of said main extension. Costs of the main extension for the purpose of computing engineering costs payable by such applicants shall be determined by application of the following unit prices to the quantities of main extension shown on the plans and specifications approved by the city council:

- A. 6" diameter pipelines-\$9.00 per lineal foot of pipe;
- B. 8" diameter pipelines-\$12.00 per lineal foot of pipe;
- C. 10" diameter pipelines-\$16.00 per lineal foot of pipe;
- D. 12" diameter pipelines-\$20.00 per lineal foot of pipe;
- E. 18" diameter pipelines-\$30.00 per lineal foot of pipe.

(Prior code § 7606.9; Ord. 20953.)

15.08.820 Charges for service connections - Where applicant installs main extension.

An applicant who is required by the terms of a main-extension agreement to install water mains and service connections (except meters) shall pay to city as a condition to commencement of construction of the main extension, or if the main extension is needed to serve a proposed subdivision, as a condition precedent to the recordation of a final subdivision map, pay the city the following:

- A. For water meters in standard service connection:
 - 1. For each $\frac{3}{4}$ inch by $\frac{3}{4}$ inch meter-\$40.00
 - 2. For each $\frac{3}{4}$ inch meter-\$60.00
 - 3. For each 1 inch meter-\$90.00
 - 4. Meters larger than one inch-Actual cost of meter plus ten percent for handling and installation. The city shall install such water meters subject to the availability of materials when premises are ready for water service.
- B. For fire hydrants: The same charges as prescribed by Section 19.32.070 of this code for installation of hydrants in subdivisions: applicant shall obtain hydrants from the city of San José corporation yard, and shall install hydrants in conformance with the plans approved by the director.
- C. For detector check meter in private fire service connection: Actual cost of meter plus ten percent for handling and installation; the city will install the detector check meter when premises are ready for service.

(Prior code § 7606.10.)

15.08.830 Charges for service connections - Where city installs main, applicant paying actual cost.

An applicant who is required by the terms of a main-extension agreement to pay to the city the actual cost of installation of water mains shall, as a condition precedent to the construction by city of such main extension, or if the main extension is needed to serve a proposed subdivision, as a condition precedent to the recordation of a final subdivision map, pay the city the following:

- A. For each standard service connection, the charges prescribed by subdivision 2 of Section 15.08.600;
- B. For each public fire hydrant service connection and fire hydrant, the charges prescribed by Section 15.08.610;
- C. For each private fire protection service connection, including detector check meter, the charges prescribed by Section 15.08.620.

(Prior code § 7606.11.)

15.08.840 Reimbursement - Amounts credited.

A. If the excess costs computed as provided in Section 15.08.800 exceed the area charges and frontage charges prescribed in Section 15.08.700, the amount of such excess shall, upon completion of the improvements required by the main-extension agreement and acceptance thereof by the city, be credited in the name of the applicant in the appropriate water main reimbursable fund established by Sections 15.08.900, 15.08.910 and 15.08.920.

B. No credits for excess costs shall be credited in the name of the applicant pursuant to Subsection A of this section if the improvements required by the main-extension agreement are of a size and capacity no greater than that needed to serve the lands to be connected.

(Prior code § 7606.7; Ord. 23471.)

15.08.850 Reimbursement credits for city work authorized when.

If the city shall construct or pay for any main extension from funds other than those advanced and paid to the city by an applicant for the construction by city of a main extension pursuant to a main-extension agreement, upon completion and acceptance of such water main, the entire cost of the main extension computed in accordance with subsection A of Section 15.08.800 shall be credited in the name of the city in the appropriate water main reimbursable fund established by Part 9 of this title, and the city shall be reimbursed from such funds at the same time and in the same manner as an applicant.

(Prior code § 7606.8; Ord. 22278.)

15.08.860 Adjustments and exceptions - Council authority.

Whenever the city council finds that the application of the area and frontage charges established by this part to a given premises to be unfair or inequitable or would result in unnecessary hardships because of the unusual circumstances peculiar

to such premises, the council may, by resolution, grant an adjustment to or exception from the area and frontage charge applicable to such premises which would be fair and equitable for the land concerned.

(Prior code § 7606.6.)

15.08.870 Credits for assessments.

Notwithstanding anything in this chapter to the contrary:

A. Whenever land connected to the city water system after June 22, 1990, has been assessed pursuant to special assessment proceedings to pay for the cost of permanent public water facilities, an amount of money based on the cost of water facilities constructed and installed and the amount assessed against such land for the facilities, shall be credited against the area and frontage charges applicable to such land under Section 15.08.700 of this chapter.

B. If the amount of credits for assessments exceeds the applicable area and frontage charges for such land, all such excess credits shall be extinguished and shall not be applied against future area and frontage charges or otherwise be credited in the name of the applicant. The amounts to be credited pursuant to this section shall be calculated as provided by Section 15.08.800 of this Part 8.

C. In no event shall credit for assessments be given for any type of facilities other than those described in Section 15.08.800 of this Part 8.

(Ord. 23471.)

Part 9

WATER MAIN REIMBURSEMENT FUNDS

Sections:

15.08.900 Alviso water service area water main reimbursable fund.

15.08.910 Consolidated water service area water main reimbursable account.

15.08.900 Alviso water service area water main reimbursable fund.

There is established the Alviso water service area water main reimbursable fund. Said fund shall be administered as follows:

A. All water main area charges and frontage charges received from applicants for water service within the Alviso water service area shall be deposited in said fund. No other moneys shall be deposited in said fund.

B. There shall be no obligation, except as provided in this section, on behalf of the city of San José in favor of said fund or in favor of the beneficiaries thereof to reimburse or make any deposits in said fund whether or not the fund at any given time is sufficient to meet the demands made upon it.

C. Annually, within a reasonable time after the thirtieth day of June of each year,

all moneys deposited in the Alviso water service area water main reimbursable fund during the twelve months preceding such June 30th, and any surplus remaining from any years prior thereto, shall be distributed to applicants who as of said June 30th have credits to their accounts in said fund. The amount of payment to each said applicant shall be in the same ratio to the total amount contained in such fund as such applicant's credit (without reduction for partial reimbursement) bears to the total credits (without reduction for partial payment) carried in the fund as of said date and which on said date have not been terminated by full reimbursement, provided that no applicant shall be entitled to reimbursement for an amount in excess of his credit in such fund. No portion of such moneys shall be distributed until such time as all those persons referred to in Section 15.08.950 have had an opportunity to enter into reimbursement contracts in accordance with the terms of the main-extension agreements referred to in said Section 15.08.950.

D. 1. An applicant entitled to reimbursement shall be carried on the reimbursable account until one of the following shall first occur:

a. Full reimbursement is made in accordance with the contract between the city and the applicant;

b. Twenty years have elapsed from June 30th of the final year in which the applicant's account has been credited;

c. Upon purchase by the city of the right to reimbursement pursuant to subsection C. of Section 15.08.780.

2. Upon occurrence of a or b in subsection D.1. above, the city shall succeed to the reimbursable credit of the applicant in the Alviso water service area water main reimbursable fund, and shall be entitled to all payments due thereon until the total reimbursable amount has been discharged.

(Prior code § 7607.2.)

15.08.910 Consolidated water service area water main reimbursable account.

There is hereby established the consolidated water service area water main reimbursable account. The purpose of the account is to facilitate the imposition of charges and reimbursement of an applicant for water main installation costs when the applicant installs main capacity in excess of necessary main capacity or performs other related services when approved by the city. Said account shall be administered as follows:

A. All water main area and frontage charges received from applicants for water service within the Edenvale water service area, the Evergreen water service area, the Coyote water service area and the North San José water service area (collectively the "consolidated water service area") shall be deposited in the consolidated water utility fund and accounted for separately within said fund.

B. The consolidated water service area water main reimbursable account shall be the sole source for payment of reimbursements to or credits made in favor of applicants. No obligation is imposed upon any other funds of the city of San José.

C. Annually, within a reasonable time after the thirtieth day of June of each year, all moneys deposited in the consolidated water service area water main reimbursable

account during the twelve months preceding such June 30th, and any surplus remaining from any years prior thereto, shall be distributed to applicants who, as of said June 30th, have credits to their accounts in said account. The amount of payment to each said applicant shall be in full or in the same ratio to the total amount contained in such account as such applicant's credit (without reduction for partial reimbursement) bears to the total credits (without reduction for partial payment) carried in the account as of said date and which on said date have not been terminated by full reimbursement, provided that no applicant shall be entitled to reimbursement for an amount in excess of applicant's credit in such account.

D. 1. An applicant entitled to reimbursement shall be carried on the reimbursable account until one of the following shall first occur:

a. Full reimbursement is made in accordance with the contract between city and the applicant;

b. Twenty years have elapsed from June 30th of the final year in which the applicant's account has been credited;

c. Upon purchase by the city of the right to reimbursement pursuant to subsection C. of Section 15.08.780.

2. The reimbursable credit of any applicant who has sold the right of reimbursement to the city shall be immediately transferred to the city's credit in the consolidated water service area water main reimbursable account.

3. The reimbursable credit of any applicant who has not been reimbursed within twenty years from June 30th following the year in which the applicant's account has been credited shall be transferred to the city's credit in the consolidated water service area water main reimbursable account without payment of compensation to the applicant.

4. Any applicant's credits transferred to the city's credit pursuant to this subsection D. shall remain in the city's credit until such time as required for reimbursement of other applicants.

(Prior code § 7607; Ord. 22847.)

Part 10

MUNICIPAL WATER SYSTEM MAJOR WATER FACILITIES FEE

Sections:

15.08.1100 Imposition of fees.

15.08.1110 Collection of fees.

15.08.1120 General provisions.

15.08.1130 Determination of fees.

15.08.1140 Nonapplicability.

15.08.1150 Rates - Review requirements.

15.08.1160 Methods of measurement and analysis.

15.08.1200 Disputed bills.

15.08.1210 Refunds.

15.08.1220 Special funds created - Restricted use.

15.08.1230 Inspection of premises authorized.

15.08.1100 Imposition of fees.

A. After the effective date of this part, no person shall make any connection, either directly or indirectly, to the municipal water system without first paying the major water facilities fee in accordance with this part.

B. No person shall build any additional structure or enlarge any existing structure, the use of which will result in an increase in the projected average daily water use, without first paying the major water facilities fee in accordance with this part.

(Ord. 23975.)

15.08.1110 Collection of fees.

A. Payment of the major water facilities fee shall be a condition of connection to the water system on any project. It is to be paid at the earliest of the following:

1. Prior to the approval of any final subdivision or parcel map for any project;
2. The issuance of any building permit; or
3. At the time the premises connects to the municipal water system.

No fee shall be due and owing for any project undertaken by the city.

B. Any person requesting approval of any final subdivision or parcel map, the issuance of a building permit or connection to the municipal water system shall submit an application obtained from the department of public works for that purpose.

(Ord. 23975.)

15.08.1120 General provisions.

A. The major water facilities fee shall be in addition to all other fees imposed pursuant to this code.

B. The director of public works shall determine the projected average daily water use for each premises and convert that amount into equivalent dwelling units (EDU). The director shall then determine the fee to be collected for each premises in accordance with the schedule of major water facilities fee resolution adopted by the city council.

C. Upon determining the fee to be collected, the director shall notify the person to be charged, by mail or personal delivery at that person's last known address, of the amount of the fee.

D. The major water facilities fee is applicable to public as well as private users of the municipal water system.

(Ord. 23975.)

15.08.1130 Determination of fees.

A. A separate fee shall be established for each service area as defined in Part 2 of Chapter 15.08.

B. The major water facilities fee shall be established at a level such that the cost of major water facilities necessary to accommodate growth and development, and which are planned over the succeeding twenty-year period, will be recovered.

C. The major water facilities fee will be based on each premises projected average daily water use expressed in equivalent dwelling units (EDU). Each premises shall share the cost for planned major water facilities to be constructed in its service area based on the relationship between its projected average daily water use and the total projected additional water use for all other undeveloped or underdeveloped premises located within that service area.

(Ord. 23975.)

15.08.1140 Nonapplicability.

The major water facilities fee is not applicable to the following:

A. Any nonresidential premises for which a building permit was issued prior to December 10, 1991.

B. Any residential premises that is part of a project that received a planned development permit prior to December 10, 1991, and received final subdivision or parcel map approval from the director of public works prior to July 1, 1992.

C. Any projects in which water system improvements for major facilities are separately paid for or financed by the developer or by an assessment district. The director of public works shall determine which water system major facilities have been so constructed or financed.

D. Any residential premises that is part of a project which received planned development zoning prior to December 10, 1991, only if such project is subject to an affordability agreement pursuant to Health and Safety Code Section 33413(b)(2) with the city and if such project receives final subdivision or parcel map approval prior to July 1, 1993.

E. Any residential premises for which a tentative map was filed prior to December 10, 1991, and which receives final subdivision or parcel map approval prior to April 1, 1992.

(Ords. 23975, 24039.)

15.08.1150 Rates - Review requirements.

The council shall periodically review and adjust the major water facilities fee if necessary.

(Ord. 23975.)

15.08.1160 Methods of measurement and analysis.

A. Written procedures for the calculation of average daily water use will be established by the director of public works and made available for review by any interested party at the director's office. Such procedures may be amended by the director from time to time as necessary to fairly implement this calculation.

(Ord. 23975.)

15.08.1200 Disputed bills.

A. Any person may dispute the amount of the major water facilities fee by filing a petition with the director accompanied by detailed factual data in support of the claim.

B. Such petition must be filed within thirty days after the date the notice of such fee was deposited in the mail or personally delivered.

C. It shall be the responsibility of the person filing the petition to prove to the satisfaction of the director that such major water facilities fee calculation is in error.

D. If the director determines that the major water facilities fee calculation was made in error, the director shall correct the fee calculation.

E. Failure to dispute the amount of the major water facilities fee in accordance with this section shall be deemed acceptance of the correctness of the fee calculation.

(Ord. 23975.)

15.08.1210 Refunds.

Whenever the director determines that money should be refunded pursuant to Section 15.08.1200, the director is authorized to make such refunds from the account in the major water facilities fund for that service area. The city shall not be liable for interest on any amount determined to be refundable. The city shall not make a refund when there is insufficient money in the account to make the refund or any part thereof.

(Ord. 23975.)

15.08.1220 Special funds created - Restricted use.

A. Any fees collected pursuant to the provisions of this Part 10 shall be placed in a separate fund, with a separate account for each service area as defined in Part 2 of Chapter 15.08.

B. A fund is hereby created for such purpose and shall be known as the "major

water facilities fees fund."

C. Such accounts shall be used only for: 1) the acquisition, construction and reconstruction of that portion of the municipal water system of the city of San José within the service area for which the account was created; 2) the repayment of principal and interest on any bonds which may hereafter be issued for the acquisition, construction or reconstruction of the facilities within the service area for which the account was created; 3) the repayment of loans or advances which may hereafter be made for the acquisition, construction or reconstruction of facilities within the service area for which the account was created; and 4) engineering, direct and administrative costs of the city in collecting the fee imposed by this part and for direct and indirect overhead costs of the city in performing any such tasks including, but not limited to, calculation of the benefits received.

D. As used in this section, "direct costs" means the cost of hiring consultants, employee wages and salaries and costs of employee fringe benefits incurred by the city, and mileage reimbursement attributable to any activities related to the collection of the major water facilities fee. As used in this section, "administrative costs" includes, but is not limited to, all costs for computer service, materials, postage, supplies and equipment.

(Ord. 23975.)

15.08.1230 Inspection of premises authorized.

Authorized representatives of the department of public works, after displaying proper identification, shall have the right of entry in and upon all buildings and premises in the city of San José for the purpose of making inspections, reinspections or otherwise performing such duties as may be necessary for the enforcement of the provisions of this Part 10. Such entry shall be subject to the provisions of Section 1822.50 et seq. of the California Code of Civil Procedure when necessary.

(Ord. 23975.)

Endnotes

1. For statutory provisions on municipal water systems, see Gov. Code § 38730 et seq.

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**APPENDIX B: COYOTE VALLEY WATER SUPPLY ASSESSMENT PREPARED BY
GREAT OAKS WATER COMPANY**

Water Supply Assessment
For The
City Of San José
Draft Environmental Impact Report
Coyote Valley Specific Plan Project
File No: PP05-102

Prepared by
Great Oaks Water Co.
July 21, 2006



GREAT OAKS WATER COMPANY

P. O. Box 23490
San Jose, California 95153
(408) 227-9540

July 21, 2006
Hand Delivered

Darryl Boyd
Department of Planning, Building and Code Enforcement
City of San Jose
200 E. Santa Clara Street
San Jose, CA 95113

Re: Water Supply Assessment for Draft Environmental Impact Report
for the Coyote Valley Specific Plan Project (File No. PP05-102)

Dear Mr. Boyd:

Enclosed is the Water Supply Assessment prepared by Great Oaks Water Company in response to the letter dated March 20, 2006 from Mr. Horwedel's office requesting a Water Supply Assessment for the Coyote Valley Specific Plan (CVSP) project.

Yours truly,

A handwritten signature in black ink, appearing to read "John W.B. Roeder". The signature is fluid and cursive, with a long horizontal stroke at the end.

John Roeder, Chairman
Great Oaks Water Company

JRC/ral
cc: Joseph Horwedel

Water Supply Assessment
For The
City Of San José
Draft Environmental Impact Report
Coyote Valley Specific Plan Project
File No: PP05-102

Prepared by
Great Oaks Water Co.
July 21, 2006

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Introduction and Summary

Senate Bill 610 (2001), codified at Water Code Section 10910 et seq., requires that certain water supply information be prepared for "projects" which are the subject of an environmental impact report (EIR) pursuant to the California Environmental Quality Act (Public Resources Code Section 22100 et seq.). Water Code Section 10912 defines a "project" as, among other things, a proposed residential development of more than 500 dwelling units. The Coyote Valley Specific Plan (Project) is considered a "project" as defined by Section 10912 because, as now formulated, it is proposed to include up to 25,000 residential dwelling units.

The majority of the Project is located within Great Oaks Water Co. (Great Oaks)'s service area. Great Oaks' service area is specific geographical territory set aside by the California Public Utilities Commission to Great Oaks for providing water service.

Great Oaks is a California corporation in good standing. Since 1959, Great Oaks has been a water corporation regulated by the California Public Utilities Commission as a Class A public water utility. Great Oaks provides potable water and is a "public water system," as defined in Water Code Section 10912(c). Great Oaks was notified by the City of San Jose of the City's Notice of Preparation of a Draft EIR for the Project.

The following information satisfies the requirements of Water Code Section 10910. In preparing this Assessment, Great Oaks has followed the procedures outlined in the Department of Water Resources guideline published in October, 2003. Great Oaks has determined that it has sufficient water supply for all presently defined uses in the Project, including the Greenbelt and agricultural, residential, commercial, industrial, municipal, recreational and public and private fire services and hydrants.

Public Utilities Commission Service Area

Great Oaks is certified by the California Public Utilities Commission (CPUC) to provide water service within an approved service territory. A copy of the filed service territory for Great Oaks area as of June, 2006 is attached as Exhibit A. The company was incorporated in 1959, and water service is provided to residential, commercial, agricultural, and industrial customers, and for environmental and fire protection uses in the authorized service area.

The service area of Great Oaks has a Mediterranean coastal climate. Summers are mild and dry, and winters are cool, with an annual average of 17 inches of precipitation. The region is subject to variations in annual precipitation, and early morning summer fog helps reduce summer irrigation requirements.

The rate of population growth accelerated in the mid-1960's, and then again in the early 1980's. During the rest of the time, the rate of population growth was moderate. Great Oaks understands that the City of San Jose plans to allow industrial and residential development in the Coyote and Almaden Valleys. City of San Jose's planners estimate 36,000 new jobs and 25,000 new residences over the next 25 years in Coyote Valley. At an estimated population of 3 persons per residence, the current population served by Great Oaks could theoretically increase from 95,000 to a maximum of 195,000 as a result of development in all areas including Coyote Valley, Almaden Valley, and the Hitachi Site.

Table 2 of the 2005 UWMP shows the population Great Oaks projects within its service area between 2005 and 2030. As stated at page three of the 2005 UWMP, these population projections include the additional population from the proposed Project site.

The present service area for Great Oaks consists of an area of twenty-four square miles. A majority of the Project is within the filed service territory. As of this date, few customers are served in the Coyote Valley. The Coyote Valley has been designated to receive rapid growth in the next ten to twenty years as outlined in Great Oaks 2005 Urban Water Management Plan on file with the Department of Water Resources.

Public Water System

Great Oaks is a public water system and water supplier with more than 20,000 service connections and provides piped water to the public for human consumption.

Great Oaks previously prepared a water supply assessment upon the request of the City of San Jose for the Hitachi Project. Great Oaks Assessment for Hitachi included a determination that it could supply water in reliance upon water sources available in the Project area as an integrated plan of providing water service within Coyote Valley

Great Oaks is informed that the City of San Jose has requested duplicate Water Supply Assessments from San Jose Water Company and San Jose Municipal Water Service for this Project. Great Oaks has previously asked the City for copies of such assessments in conformity with Water Code Section 10910(h) and the Public Records Act, but the City has refused to provide them.

Urban Water Management Plan

Great Oaks approved its 2005 UWMP (2005 UWMP) on April 28, 2005, in accordance with California Water Code Section 10610 et seq. A copy is attached as Exhibit B. Great Oaks is not required to revise its UWMP until 2010.

The UWMP is incorporated herein by reference. The 2005 UWMP includes water supply projections based on water demands through 2030. The Project's water demand, associated with the proposed residential and retail/commercial mixed-use development and emergency fire suppression water for the Project is accounted for in the 2005 UWMP. The total projected water supplies available during normal, single dry and multiple dry years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to Great Oaks' existing and planned future uses known at this time, including agricultural and manufacturing uses.

Water Rights, Water Supply Entitlements and Water Service Contracts

As noted in Table 7 of the 2005 UWMP, Great Oaks has concluded that it has sufficient water supplies to meet the projected demands of the Project in addition to the demands of existing and other planned future uses.

A. Water Rights: Groundwater Resource: Great Oaks obtains all of the water it supplies from local groundwater sources. Great Oaks contemplates that all potable water served to its present customers and the Project will be groundwater.

Great Oaks overlies the Santa Teresa and Coyote groundwater sub-basins, both of which are managed by the Santa Clara Valley Water District (District). The Santa Teresa groundwater sub-basin is a sub-unit of the Santa Clara Valley sub-basin and is required to be recharged by the District. The District uses natural rainfall, runoff and imported water from California's Central Valley to implement their recharge obligations.

Great Oaks has been operating exclusively in these aquifers for almost 50 years. Currently, all of Great Oaks' water supplies come from 18 wells in the Santa Teresa and Coyote sub-basin aquifers. These aquifers are recharged in part by rainfall and in part by a system of local reservoirs and percolation ponds managed by the District. Based on the preceding factors, Great Oaks maintains that there is sufficient water in the target groundwater basins to fully supply the Project.

Groundwater classified as percolating groundwater is not subject to the Water Code provisions concerning the appropriation of water, and a water user can take percolating groundwater without having a State-issued water right permit or license. For that reason, Great Oaks has the right to extract all percolated groundwater it may require from the two sub-basins for service to the Project.

The Santa Teresa and Coyote groundwater sub-basins have not been adjudicated.

Groundwater Pumped Over Past Five Years						
	2002	2003	2004	2005	06/2006	
Supply total	13,185	12,791	13,124	12,692	5,300	
Units of Measure: Acre-feet/Year						

Amount of Groundwater Projected to be Pumped by Great Oaks Through 2030: According to the Supply and Demand projections in the 2005 UWMP, in average precipitation years, Great Oaks has sufficient water supply to meet the needs of its customers, including all new customers resulting at the Project site (2005 UWMP, page 12). Great Oaks projects sufficient supplies to satisfy projected demands, including the additional demand associated with the Project, the combination of recharge from local

and imported surface water and natural recharge in the Santa Teresa and Coyote sub-basins will be sufficient to meet demands through 2030.

The State Water Resources Control Board has not identified any groundwater used or available to Great Oaks in the two subbasins as coming from a subterranean stream flowing through a known and definite channel and therefore subject to State permit. For that reason, Great Oaks requires no prior state permit to extract all groundwater it may require from the two sub-basins for service to the Project.

The District collects a groundwater charge on all groundwater produced for beneficial uses in Santa Clara County. The District is specifically required to expend the pump tax on groundwater recharge within specified zones within Santa Clara County. Other than payment of the pump tax, Great Oaks has no legal impediment to extraction of groundwater for its existing customers or the Project. Great Oaks has consistently paid the pump tax levied by the District.

B. Water Supply Entitlements: As Great Oaks has sufficient groundwater for all its present and future requirements, Great Oaks maintains no entitlements to additional outside water supplies.

Great Oaks has the potential to interconnect with an existing District 60" treated water line on the western boundary of Great Oaks' service area. Were this service implemented, Great Oaks could receive treated potable water from (or provide groundwater water to) the District. Great Oaks does not contemplate that operating the connection will be necessary to serve the Project.

Recycled water may at some time become available at the Project. Recycled water is currently being used for industrial purposes in cooling towers at the Metcalf Energy Center. The recycled water facilities are municipally owned. Future recycled water availability is discussed further in the 2005 UWMP.

The District and City have both in prior proceedings determined that before recycled water is used on landscape or agricultural sites within the Project, advanced treatment to further remove contaminants must be provided. At present, no plans are underway to construct an advanced treatment facility for service of recycled water for the Project.

Great Oaks is the retail water supplier and as such has priority right to serve all recycled water within the project. As no recycled water is presently available, Great Oaks is not required to perfect a contract with the City of San Jose or the District to implement retail recycled water delivery.

C. Water Service Contracts Held by Great Oaks: Great Oaks imports no water and does not rely on imported water. The District imports non-potable water from the Central Valley Project. The District has a contract with the Central Valley Project for

152,500 af/year. According to the 2001 District UWMP, in dry years the Central Valley Project will deliver 75 percent of contract quantity (2001 District UWMP, pages 37-38). A small amount of this water may be used for recharge in the Santa Teresa and Coyote Subbasins. In addition, the District has entered into a long-term agreement with the Semitropic Water Storage District for participation in its Groundwater Banking and Exchange Program (2001 UWMP, pp.38-29). These sources of supply are available within Santa Clara County but not directly by contract with Great Oaks.

As Great Oaks projects receiving sufficient water supplies with its current infrastructure, it does not anticipate the need to connect to the treated surface water supplies to which it has access from the District (2005 UWMP, page 5).

Great Oaks' current capital outlay programs are for the regular replacement, upgrades, expansions and enlargements of facilities. Great Oaks' capital investment programs are approved on a regular basis by the CPUC, the last having been adopted effective July 1, 2006. As Great Oaks uses groundwater exclusively, its capital projects are directed at water well maintenance and construction, and water main replacement and construction.

Great Oaks delivery infrastructure is local, with all facilities being found entirely within Santa Clara County. No federal or state permits are required for new delivery infrastructure construction at the present time. Local permits are subject to municipal review and environmental standards and can be expected to be required for the Project. Great Oaks anticipates the regular award of municipal agency permits for the construction of such infrastructure and does not currently require any regulatory approvals to convey or deliver such water supplies.

As Great Oaks relies on its sufficient groundwater resources, it has no plans, and therefore no timeframe, to acquire additional, non-groundwater supplies for service to the Project.

Regulatory Approvals Required to Convey or Distribute Water

A. Public Utility Commission Policy: Great Oaks knows of no known regulatory or licensing approvals required to provide service to the Project. Great Oaks is subject to CPUC General Order 103 and anticipates providing all water service in accordance with requirements of the Commission. General Order 103 has been in existence since 1955, and amended several times thereafter. Great Oaks knows of no proposed revisions to General Order 103 that would impact in any way the ability to serve the Project as now described.

B. SB221 Water Supply Verifications: SB221 requires water suppliers, upon request, to provide written verifications of sufficient water supply to serve subdivisions of 500 housing units or more. These verifications amount to commitments to serve and are relied upon by land use planners to ensure an adequate and perpetual water supply for new homes. A water supplier faces enormous financial loss if its verification becomes unsupportable or fails in the future. For that reason, Great Oaks anticipates that water suppliers will become more reluctant over time to issue verifications.

Because Great Oaks, or any water supplier, could receive SB221 verification requests for development projects other than CVRP, and because Great Oaks must respond to such requests in the order in which they are received and without discrimination, Great Oaks must reserve the right to issue water commitments to others on a first-to-file basis.

At the present time, Great Oaks has not been asked nor has it delivered a written verification of supply to any proposed subdivision of 500 or more customers. Based upon current conditions, Great Oaks is prepared to consider and issue a water supply verification for the entire Project. Great Oaks must reserve the right, however, to review and assess all water supply verification requests should implementation of the Project proceed in serial fashion.

C. Non-SB221 Prior Water Supply Commitments. As a regulated public utility, Great Oaks is formally required to not discriminate, prejudice, disadvantage, or require different rates or deposit amounts from a person because of race, religious creed, color, national origin, ancestry, physical handicap, medical condition, occupation, sex, marital status or change in marital status. Great Oaks fully supports this policy and recognizes that it must treat all customers within its filed service territory on an equal basis.

The Project is fully included within Great Oaks service territory as recognized by the Public Utilities Commission. Great Oaks has no prior service commitments that would prevent full water supply to the Project.*

*Footnote: Great Oaks supply situation is apparently different from that of San Jose Municipal Water System (SJMWS). In its June 2005 final report entitled "Countywide

D. Evolving California Energy Policy: In 2003, the California Energy Commission, the California Power Authority, and the CPUC adopted a first-ever Energy Action Plan (EAP) that listed joint goals for California's energy future and set forth a commitment to achieve these goals through specific actions.

In October, 2005, the EAP was revised and, as to regulated water utilities, the CPUC committed to explore and implement programs to reduce *electric* demand related to the water supply systems during peak hours and opportunities to reduce the energy needed to operate water conveyance and treatment systems.

As of this date, Great Oaks has received no mandate to reduce the use of electric energy in any of its present or future requirements to supply water. Great Oaks uses exclusively groundwater and expects to do so for all potable water requirements of the Project. Great Oaks is not exposed to risk of regulatory energy efficiency programs that may impact state or local water transmission facilities or water treatment systems.

E. Water Service to Affordable Housing: Government Code Section 65589.7, effective January 1, 2006, requires entities that provide water service adopt written policies and procedures regarding provision of service to a development that includes affordable housing. In providing water service where affordable housing is involved, the regulated utility must take into account specific sections of both the Water Code and the Health and Safety Code.

Great Oaks has adopted such rules and procedures and has recently filed a tariff with the CPUC formally acknowledging and establishing compliance with Government Code Section 65589.7. Great Oaks' tariff is designed to fully support the final affordable housing component of the Project. Great Oaks has the flexibility to amend and adopt revisions to its Affordable Housing tariff should the low income housing component of the Project be revised. The result is that Great Oaks will support all affordable housing provided at the Project with no resulting disincentive to serve.

F. Financial Support of Low Income Households: Great Oaks expects the Project will incorporate an as yet undetermined number of low and very low income households in its final residential mix. For instance, the League of Women Voters in

Water Service Review", the Santa Clara County Local Agency Formation Commission (LAFCO) found that SJMWS will not be able to meet the maximum day demands for its existing obligations in its Evergreen service area in the event water supply from the Santa Clara Water District is interrupted. LAFCO states that SJMWS groundwater production and capacity for storage does not equal the maximum day demand. SJMWS expects further growth in the Evergreen demand, but that it cannot drill new wells and is currently maximizing all available treated water (LAFCO, pp.146-7,151). Great Oaks anticipates that SJMWS, as the present water supplier for its Evergreen service area, will commit its resources first to those needs.

April, 2006 recommended a final residential availability of 8% very low income and a further 12% of low income households be required in the Project. The Housing Choices Coalition in February, 2006 recommended the same 20% total low income residences.

Great Oaks currently provides financial relief to qualified low income residential households, whether owner occupied or rental property. All Great Oaks residential customers who are separately metered are entitled to apply for the Low Income Customer Assistance Program (LICAP). Participation in the program reduces the monthly water meter charge by 50%. The cost of the program is adjusted among all other Great Oaks customers. The result is that Great Oaks can and will support all low income housing provided at the Project with no resulting disincentive to serve.

6. Assistance for Active Military Service: Great Oaks has adopted a program, approved by the CPUC, to postpone termination of water service at residences where the head of household is serving in active military duty. The program meets the requirements of Military and Veterans Code section 827, effective January 1, 2006. Implementation of the program will not create a disincentive to provision of water service to the Project.

7. Department of Health Services: Great Oaks is subject to California Department of Health Services regulations on water quality. Great Oaks knows of no proposed health related regulation of water quality that would adversely impact Great Oaks' ability to supply all water to the Project.

8. Fluoridation: Great Oaks currently serves groundwater without addition of fluoride. Great Oaks may be required to fluoridate its entire water supply if funding is first provided by the Department of Health Services. Should fluoridation of the water supply for the Project become necessary, implementation of treatment will not negatively impact or otherwise interrupt water service to the Project.

Reliance on Supplies or Suppliers Never Used

Great Oaks has the potential to interconnect with two existing District 60" treated water line turnouts located on the western boundary of Great Oaks' service area. Were this service implemented, Great Oaks could receive treated potable water from (or provide groundwater water to) the District. Great Oaks does not contemplate that operating the connection will be necessary to serve the Project.

Great Oaks maintains two water supply interties with San Jose Water Company on Snell Avenue in San Jose. These facilities are in place for mutual aid in emergency situations, but remain unused. Great Oaks does not contemplate that operating the connections will be necessary to serve the Project.

Both the San Jose Water Company and SJMWS rely on the treated water from the District pipeline to serve their existing customers. Great Oaks does not contemplate obtaining water from the turnouts to supply the Project or Great Oaks' existing customer base.

Water Supply for Project

A. Groundwater Sources: Great Oaks overlies the Santa Teresa and Coyote sub-basins, which are managed by the Santa Clara Valley Water District. The District collects a groundwater charge which is specifically required to be expended on groundwater recharge within specified zones within Santa Clara county. The basins are required to be recharged by the District.

As shown in Table 5 of the 2005 UWMP, Great Oaks pumped from the Santa Teresa sub-basin a total of 10,685 acre feet, 13,048 acre feet and 12,924 acre feet in, respectively, 1995, 2000 and 2004. At Table 3 of the 2005 UWMP, Great Oaks projects that, subject to sufficient recharge, it can obtain from groundwater aquifers supplies ranging from 35,000 acre feet in 2005 up to 50,000 acre feet in 2030.

For the past five years (2002-2006 to date) has pumped groundwater from 18 wells all of which are located in Great Oaks' service territory. This is the same area from which the Project will be supplied.

No court or board has adjudicated the rights to pump groundwater from the basin. For that reason, no court order or decree exists which describes the legal right to pump groundwater.

In its Bulletin 180-6, the Department of Water Resources has not characterized any groundwater basin in Santa Clara County as overdrafted. For that reason, no effort is being undertaken in the basin or basins to eliminate any long-term overdraft condition. No plan exists for remediation of an overdraft condition in Santa Clara County.

Great Oaks has contacted the State Department of Water resources and confirmed that, at present DWR, does not categorize the Santa Teresa basin as overdrafted (DWR Bulletins 118-1, 160). In its most recent water availability report (March, 2006), the District stated that the groundwater basins in Santa Clara County are "full". For that reason, no plan to correct a present or contemplated overdraft situation is available or required for the basin or the Project.

Groundwater in Santa Clara County contains little detectible fluoride. Should the Department of Health Services provide advanced funding for fluoridation treatment, the groundwater supplied to the Project will contain fluoride.

The State Legislature as directed a study to evaluate and establish separate recommended public health goals for certain water disinfection byproducts. SB 1067 requires adoption of a public health goal for total trihalomethanes by January 1, 2007, and for total haloacetic acids by January 1, 2008. The legislation requires the Department to adopt regulations to ensure that any public water system that has levels of total trihalomethanes or total haloacetic acids that pose a potential risk to public

health to notify its customers of the public health risks, including any risks to pregnant women, from the contaminant and would set forth specific notices if public water systems exceed the maximum contamination levels for those contaminants.

California's maximum contaminant level for THM is currently 80 mg/l. Great Oaks has a non-detect record of carcinogenic trihalomethanes (THMs) from groundwater, whereas treated water available from the District has a customary range of 50–70mg/l THMs.

B. Other Sources: As stated above, Great Oaks has sufficient right and access to groundwater to make additional sources of water unnecessary. Installation of additional wells is the most efficient and reliable source of augmented supply. Wells provide the de-centralization of facilities and N+1 redundancy that new treatment plants or storage tanks cannot. Coyote Valley has excellent ground water quality and quantity, and it is readily accessible.

C. Plans to Acquire Additional Supply: Great Oaks existing adjoining water distribution system is on-line and available to stabilize pressures and supply water at any time for full service to the Project. A new storage tanks would be useful for doing "time of day" pumping, however, the tank should best be located furthest from the low point in the Project. Great Oaks is currently evaluating a potential storage tank site for support of both Coyote and Almaden valleys. For these reasons, Great Oaks has no current need or plan to acquire a separate additional water supply for the Project.

Any costs of improvements (wells, tanks, transmission mains, pumps, etc.) will be funded pursuant to CPUC policy and supervision. Great Oaks will pay the costs of all "in tract" mains and services by way of CPUC standard main extension rebate contracts given to the Project or its unit developers. Other regularly predictable costs of development will be funded from Great Oaks' cash reserves, without incurring debt and subject to collection from all customers.

Demand Analysis for CVSP Project

In the Project area, extensive agricultural use is prevalent with some land owners and tenant farmers using their own water wells. Agriculture is water intensive. Experience has shown that, in general, replacement of agriculture with urban uses does not generate enhanced demand for water.

In its 2005 UWMP, Great Oaks prepared all forecasts with the potential development of the Project area. The estimates of population, water demand and water supply contained in the UWMP anticipated a build-out of Coyote to approximately 25,000 residential units and all related industrial, commercial, recreational and municipal uses. This Water Supply Assessment is consistent with the projections used by Great Oaks in preparing its UWMP. The request indicates a possible 26,500 residential units, but their location, floor space, and landscape parameters were not provided.

Great Oaks projects the following individual population growth for its complete service area including the Project at 2030.

Population Projections for Great Oaks, Including Project Services						
	2005	2010	2015	2020	2025	2030/opt
Service Area Population	95,000	100,000	123,750	147,500	171,250	195,000

Great Oaks currently has approximately 21,000 service connections. It considers its customer usage reasonably predictive of water service usage at the Project. Great Oaks contemplates that water usage at the Project will maximize water conservation measures.

Groundwater Pumped Over Past Five Years						
	2002	2003	2004	2005	06/2006	
Supply total	13,185	12,791	13,124	12,692	5,300	
Units of Measure: Acre-feet/Year						

Dry Year Supply

Great Oaks estimated its dry year supply in its 2005 UWMP as set forth below. The supply projection includes obtaining treated surface water from Great Oaks' emergency standby connections with the District and San Jose Water Company. The following table presents estimates for Great Oaks entire service area, including the Project as now contemplated.

Single Dry Year and Multiple Dry Water Years					
Water Supply Sources	Current Supply 2005 (Volume)	Single Dry Water Year (Volume)	Multiple Dry Water Years		
			Year 1 (Volume)	Year 2 (Volume)	Year 3 (Volume)
Supply totals	47,030	47,030	47,030	39,976	35,273
Percent Shortage		0%	0%	15%	25%
Demand totals	12,924	12,924	12,924	12,924	12,924
Difference	34,106	34,106	34,106	27,052	22,346
Unit of Measure: Acre-feet/Year					

Great Oaks maintains its groundwater supplies have historically performed well even in declared drought status. The District is responsible for maintaining groundwater levels at performance levels. As the table below indicates, even in a third successive dry year, Great Oaks anticipates having access to sufficient water to meet projected demand of its entire customer base, including all uses within the Project.

Supply Reliability				
Average/ Normal Water Year 2005 (Volume)	Single Dry Water Year (Volume)	Multiple Dry Water Years		
		Year 1 (Volume) 2006	Year 2 (Volume) 2007	Year 3 (Volume) 2008
35,000	35,000	35,000	29,750	26,250
Unit of Measure: Acre-feet/Year				

Dry Year Demand

Great Oaks experience in the most recently declared drought was that customers have the ability to respond and reduce water demand within certain parameters. In addition, a dry year scenario would permit mandatory water rationing and other emergency conservation programs.

The table below is projected demand for a non-drought condition. Great Oaks estimates that a temporary thirty percent reduction in water demand can be obtained under drought conditions.

Projected Demand						
	2005	2010	2015	2020	2025	2030/opt
Demand totals	12,924	16,751	20,180	23,279	26,125	29,201
Units of Measure: Acre-feet/Year						

The District has numerous options available for the continuous supply of water to meet its groundwater recharge obligations, even during drought conditions, through water banking and wheeling arrangements it maintains with other water resource agencies throughout the State of California.

Great Oaks maintains that it has sufficient water supply to meet a third dry year demand at the Project and within its filed service territory.

Project Water Supply Vulnerability

A. Supply and Demand Comparisons

Projected Supply and Demand Comparison						
	2005	2010	2015	2020	2025	2030/opt
Supply totals	47,030	50,030	53,030	56,030	59,030	62,030
Demand totals	12,924	16,751	20,180	23,279	26,125	29,201
Difference	34,106	33,279	32,850	32,751	32,905	32,829
Units of Measure: Acre-feet/Year						

The foregoing estimates indicate that in average precipitation years, Great Oaks has sufficient water to meet its customers' needs, through 2030, including those contemplated by the Project. This determination is based on the continued commitment of the District to recharge groundwater.

B. Supply Reliability: Please see the 2005 UWMP.

C. Transfer and Exchange Opportunities: Please see the 200 UWMP

D. Water Demand Management Measures: As set out in detail in its 2005 UWMP, Great Oaks attempts to address and comply with all of the BMP targets listed in the CUWCC MOU where applicable or economically feasible.

E. Water Shortage Contingency Plan: Great Oaks anticipates no water shortages or long-term service interruptions for the Project. Great Oaks authority to impose rationing and other shortage remedies is set forth in Exhibit C.

Assessment That Supply is Sufficient

Great Oaks finds and declares that its total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed Project, in addition to Great Oaks' public water system's existing and planned future uses, including agricultural and manufacturing uses. This finding is valid as of the date of this Assessment.

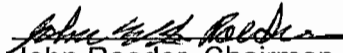
This Assessment of sufficient supply is provided pursuant to Water Code section 10914 which states that nothing in this part (Water Code section 10901 et seq.) is intended to create a right or entitlement to water service or any specific level of water service, and that nothing in this part is intended to either impose, expand, or limit any duty concerning the obligation of a public water system to provide certain service to its existing customers or to any future potential customers.

Governing Body Approval of Assessment at Regular or Special Meeting

According to Water Code Section 10910(g)(1), a water supply assessment is incomplete if not presented to the water supplier's governing board and approved at a regular or special meeting.

By resolution of the Board of Directors of Great Oaks Water Co., Inc. I am authorized to execute this Water Supply Assessment effective as of July 21, 2006.

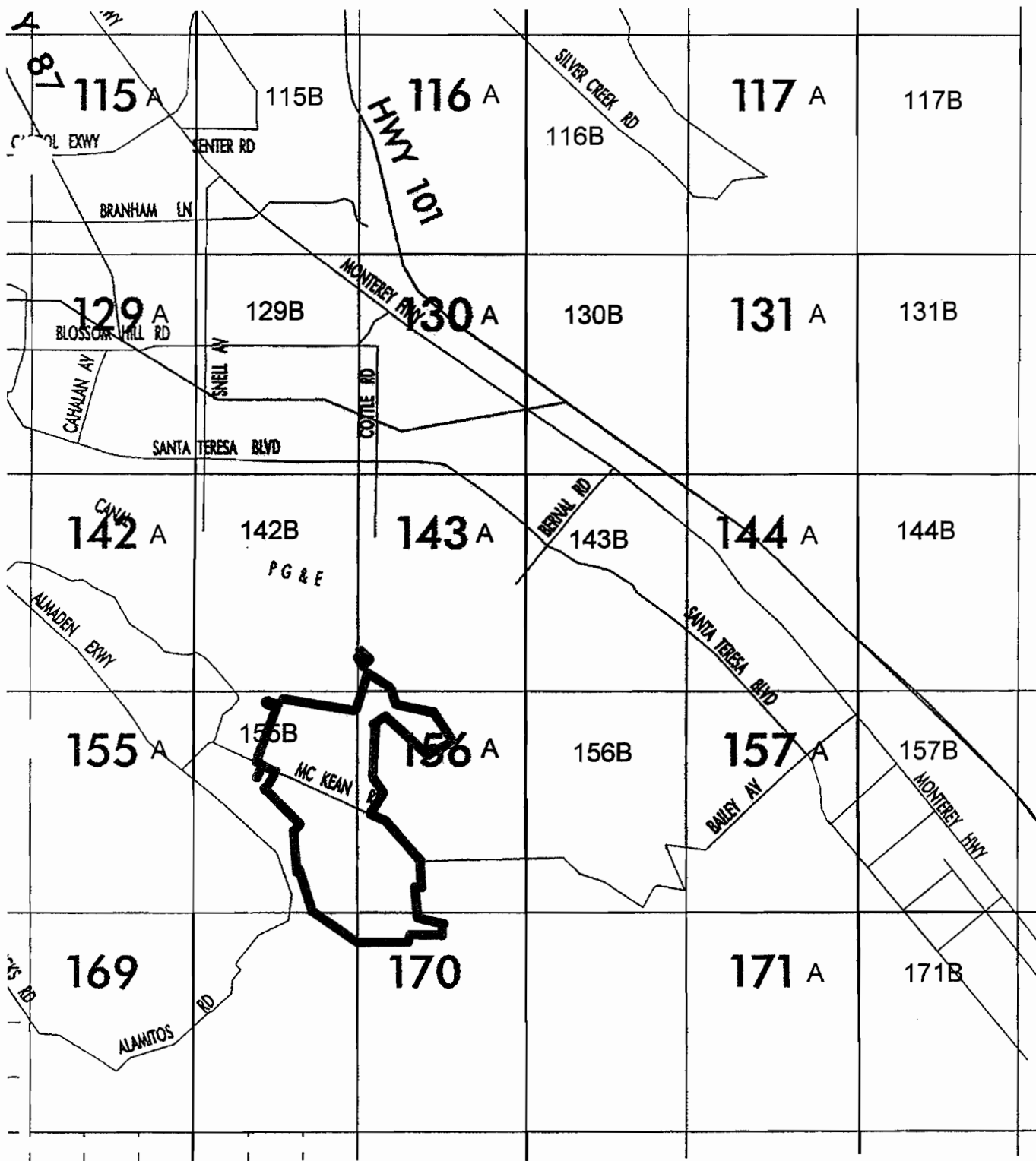
Dated: 7-21-06



John Roeder, Chairman and
Chief Executive Officer

Exhibits

Exhibit A
Great Oaks Service Area Map



GREAT OAKS WATER COMPANY
CERTIFICATED AREA

Present Area

Area Being Added



in compliance with Resolution W-4287

Index page is approximate. See numbered map sheets for exact locations.

Exhibit B
Great Oaks 2005 Urban Water Management Plan

Great Oaks Water Company
APRIL, 2005

2005 URBAN WATER MANAGEMENT PLAN

Great Oaks Water Company
15 Great Oaks Boulevard, Suite 100
San Jose, CA 95119
www.greatoakswater.com

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Great Oaks Water Company

2005 Urban Water Management Plan

Contact Sheet

Date plan submitted to the Department of Water Resources:

Name of persons preparing this plan: John Roeder, Chairman; Bobby Dartez, Director
Maintenance & Operations

Phone: (408) 227-9540

Fax: (408) 227-7126

E-mail address: bdartez@greatoakswater.com

The Water supplier is an: Investor Owned Public Utility Company

The Water supplier is a: Retailer

Utility services provided by the water supplier include: Water

Is This Agency a Bureau of Reclamation Contractor? No

Is This Agency a State Water Project Contractor? No

Public Participation

Law

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published ... After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

Public Participation

Great Oaks Water Company has actively encouraged community participation in its urban water management planning efforts since the first plan was developed in 1985. Public meetings were held for the 1985, 1990, 1995, 2000 and 2005 plans.

For this update to the Urban Water Management Plan, a public meeting was held on April 5, 2005, at the company office. The meeting included discussions on water conservation opportunities for specific customer sectors. Public opinion was solicited for review and comment on the draft plan before the company's Board of Directors' approval.

Notice of the public meeting was published in the San Jose Mercury News on March 21, 2005 and also on March 28, 2005. Copies of the draft plan were made available at the utility's office prior to the public meeting.

Plan Adoption

Great Oaks prepared this update of its Urban Water Management Plan during the winter and early spring of 2005. The updated plan was adopted by the Board of Directors in April 2005, and submitted to the California Department of Water Resources within 30 days of the Board's approval. Appendix A contains a copy of the Corporate Resolution of Plan Adoption. This plan includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

Agency Coordination

Law

10620 (d) (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

Coordination within the City

The majority of Great Oaks' service area is within the City of San Jose. Two other water retailers who also serve the City of San Jose are; The Municipal Water Division of The City of San Jose, and San Jose Water Company. Great Oaks' staff has met regularly with staff members from the other utilities. Most of the meetings took place at various Subcommittee Meetings of the Santa Clara Valley Water District (SCVWD).

Interagency Coordination

Great Oaks Water Company is a member agency of the SCVWD. Water sources for Great Oaks are controlled by the Water District. Great Oaks therefore coordinated the development of this plan with the following agencies, and subcommittees of the SCVWD:

Retailers Subcommittee	Hitachi Development Group
Treated Water Subcommittee	City of San Jose Planning Department
Water Quality Subcommittee	California Energy Commission
Santa Teresa Basin Subcommittee	South Bay Water Recycling
Water Supply Subcommittee	California Public Utilities Commission
Groundwater Subcommittee	

Table 1 summarizes the efforts Great Oaks has taken to include various agencies in its planning process.

Table 1. Coordination and Involvement						
Entities	Coordination and Involvement Actions					
	Helped write the plan	Was contacted for assistance	Was sent a copy of the draft	Commented on the draft	Attended agency meetings	Was notified of intention to adopt
Wholesaler		✓			✓	✓
Retailers					✓	✓
Wastewater Agency					✓	✓
General Public		✓		✓	✓	✓

Supplier Service Area

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631. (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

Service Area

The service area for Great Oaks is authorized by the California Public Utilities Commission. Copies of the Service Area Maps currently on file with the Commission are included in Appendix B. Great Oaks' service area includes a portion of the southern end of the City of San Jose, known as the Edenvale, Blossom Valley, SE Almaden Valley and Coyote Valley area. The area is roughly bounded by Snell Avenue on the West, the Silver Creek Ridge on the East, Palm Avenue (in Coyote Valley) on the South, and Riverview Drive on the North.

We alert the California Department of Water Resources of a service area dispute between the City of San Jose Municipal Water Division and Great Oaks. The City of San Jose is very aggressive in moving into

Great Oaks' service area as certified by the California Public Utilities Commission. To avoid any possible double reporting of future demand, please be advised that this Urban Water Management Plan assumes that the service areas and growth projections are based on the assumption that Great Oaks will continue growth in its service area authorized by the California Public Utilities Commission.

Climate

The service area of Great Oaks has a Mediterranean coastal climate. Summers are mild and dry, and winters are cool, with an annual average of 17 inches of precipitation. The region is subject to wide variations in annual precipitation, and early morning summer fog helps reduce summer irrigation requirements.

Current and Projected Population

The rate of population growth accelerated in the mid-1960's, and then again in the early 1980's. During the rest of the time, the rate of population growth was moderate. In the late 2000's population growth is again expected to accelerate, due to changes in the City of San Jose planning policies to allow industrial and residential development in Coyote and Almaden Valley. City of San Jose's planners estimate 36,000 new jobs and 25,000 new residences over the next 25 years in Coyote Valley. These estimates are probably not reasonable. At an estimated population of 3 persons per residence, the current population served by Great Oaks could theoretically increase from 95,000 to 195,000 as a result of development in all areas including Coyote Valley, Almaden Valley, and the Hitachi Site.

Other Demographic Factors

The service area for Great Oaks currently occupies an area of about seven square miles of facilities. In addition, the service area in the Coyote Valley comprises an additional estimated seven square miles, but as of this date, few customers are served in Coyote. The Coyote Valley has been designated to receive rapid growth in the next ten to twenty years as outlined elsewhere in this Urban Water Management Plan.

The company was incorporated in 1959, and water service is provided to residential, commercial, agricultural, and industrial customers, and for environmental and fire protection uses in the authorized service area.

Original growth in the service area was spurred by the growth of the manufacturing activities of the IBM facility on Cottle Road. The area soon developed into a bedroom community with several small commercial centers disbursed throughout the service area. The land's previous use for prune orchards steadily turned into residential use. Today there is little agricultural use in the service area. However, in the Coyote Valley extensive agricultural use is prevalent with some ranchers using their own wells. Growth of industry in this area is occurring now and is expected to continue. Growth from infill includes mostly multi-family residential living units.

Table 2 shows the population estimates for the service area from 2005, with projections to 2030.

Table 2. Population Projections						
	2005	2010	2015	2020	2025	2030/opt
Service Area Population	95,000	100,000	123,750	147,500	171,250	195,000

Past Drought, Water Demand, and Conservation Information

Santa Clara Valley experienced a drought from 1987 through 1992. Great Oaks met its customers' needs by joining in the public awareness efforts of the other retailers in the area and the SCVWD.

By 1990, however, because of worsening local conditions, and reduced imported water supplies due to drought conditions in Northern California, many retailers established mandatory rationing programs. These conservation goals varied from time to time, reaching a maximum mandatory goal of 25% as required by the SCVWD. Great Oaks met its rationing goals of up to 25% reduction without the use of penalties, water banking accounts, or other punitive measures. Our praise of customers' conservation efforts was the single most effective factor that helped us obtain a slightly higher percentage of conservation than did the City of San Jose Municipal Water Department or the San Jose Water Company.

Comparison figures were published monthly by the District. We relied on the educated and informed good behavior of our customers (plus our praise) to reach our conservation goals during this period, and the program was completely successful. Our customers appreciated not having to comply with punitive measures, and Great Oaks did not incur the significant administrative cost of operating a water banking program. Also after the drought ended, our customers felt kindly and cooperative toward Great Oaks. They didn't hate us for canceling their "banked water" accounts after the drought was officially over.

Our policy of praising customers to get their cooperation to conserve was so effective that we recommend others use the same tactic.

Water Sources (Supply)

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments [to 20 years or as far as data is available.]

Water Supply Sources

Great Oaks has two water sources available for distribution: groundwater, and treated surface water. These supplies are both presently managed by the SCVWD. SCVWD charges Great Oaks a groundwater extraction charge (pump tax) for all water pumped from Company wells, not just water sold.

At the present time all of the water in Great Oaks' system is from our own wells. Currently Great Oaks has no interconnections with SCVWD treated surface water supply, but two connections are potentially available if the need should arise. SCVWD has a 60" line on Snell Road, which is the west boundary of our service area.

To increase pipe sizes at the edge of our system and to connect to SCVWD's line for treated surface water will be expensive. Also, the quality of treated surface water is not as good as water from our own wells. Specifically, we have a non-detect record of THMs from our wells, whereas treated water available from SCVWD has a range of 50–70mg/l THMs. Also by serving only water from our own wells, we do not get complaints of water smelling or tasting of chlorine.

The same increases to pipe sizes along Snell Rd and Santa Teresa Blvd would allow Great Oaks to supply over 20 million gallons of water per day into SCVWD's pipeline in an emergency. Great Oaks network of water mains and wells is inherently more reliable than a single surface water treatment plant.

Table 3, Current and Projected Water Supplies, lists the maximum supply that could be expected to be available to Great Oaks.

Table 3. Current and Projected Water Supplies Af/Yr						
Water Supply Sources(af)	2005	2010	2015	2020	2025	2030/opt
Groundwater	35,000	38,000	41,000	44,000	47,000	50,000
Treated Surface Water	12,030	12,030	12,030	12,030	12,030	12,030
Total	47,030	50,030	53,030	56,030	59,030	62,030
Units of Measure: Acre-feet/Year						

Groundwater

Great Oaks obtains about 13,000 acre-feet per year (AFY) from 16 wells, with an average depth of 300 feet from the Santa Teresa Sub-basin. The Santa Teresa Sub-basin has been studied by the SCVWD that controls the basin's recharge.

Since the early 1980s there have been five significant contamination events in the basin. The resulting contaminant plumes consist of 1-1-1 TCA, Freon 113, And 1-2 DCE leaks from Fairchild Semiconductor and IBM, and MTBE leaks from Chevron, Tosco & USA service stations. These plumes have been studied by Great Oaks, the SCVWD and the California Water Resources Control Board. Clean-up efforts by the polluters have resulted in control of the plume migration, and a significant decrease in the size of the plume. These clean-up efforts will continue for many years to come. Great Oaks has been able to develop wells in selected areas that are out of the contaminated areas, and our water quality meets or exceeds standards set for acceptable drinking water by the federal government and the California Department of Health Services.

The Santa Teresa Sub-basin is replenished by local surface water and imported surface water supplies through percolation operations operated by the SCVWD. SCVWD charges Great Oaks a Groundwater Extraction Charge (pump tax). The pump tax in recent years has been over 50% of our total operating expenses.

Great Oaks relies entirely on the SCVWD for its water supply, and the District understands the necessity to make water available even during drought years for Great Oaks and its other water utility retailer customers. The District has numerous options available for the continuous supply of water even during drought conditions through water banking and wheeling arrangements with other water resource agencies throughout the State of California. See the Water Shortage Contingency Plan section of this plan for additional actions to be taken during a water shortage.

Recycled Water

Recycled water is not currently being used in Great Oaks service area. Great Oaks continues to examine potential supplies and uses of recycled water. If and when recycled water is used in Great Oaks area, we will be the retailer of this water to appropriate customers.

Reliability Planning

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (c) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable.

10631 (c) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to replace that source with alternative sources or water demand management measures, to the extent practicable.

10631 (c) Provide data for each of the following:

(1) An average water year, (2) A single dry water year, (3) Multiple dry water years.

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (b) An estimate of the minimum water supply available during each of the next three-water years based on the driest three-year historic sequence for the agency's water supply.

Reliability

Great Oaks Water Company relies partially upon the resources of SCVWD to supply the groundwater which Great Oaks pumps and delivers to its customers. SCVWD has numerous programs in place to improve the reliability of the water supply for Great Oaks and SCVWD's other retail customers. Some of these programs are described below. For a complete discussion of reliability planning, please refer to SCVWD's Urban Water Management Plan.

Frequency and Magnitude of Supply Deficiencies

The entire Santa Clara Valley experienced a drought during 1976 - 1977, then again during the period 1987 - 1992. Various ordinances were passed at the SCVWD and the City of San Jose requiring the use of water saving practices, and the prohibition of water waste.

The magnitude of the reductions in per customer use ranged from zero to twenty-five percent during these periods. These reductions were achieved by customer cooperation at the retail level. There was no critical supply deficiency, and no customer was penalized for the water used.

The current and future supply projections through 2030 are shown in Table 3.

Plans to Assure a Reliable Water Supply

The future supply projections assume normal recharge to the Santa Teresa Sub-basin. The SCVWD has water banking and other transfer programs in place that can be used to supply the sub-basin during a future drought. These programs are being funded by including their future costs in current charges Great Oaks pays to the District through the pump tax.

Recycled water is not served in the service area of Great Oaks, but as this water supply does become available, Great Oaks will be able to substitute reclaimed water service for potable water service to appropriate customers.

Reliability Comparison

Table 4 details estimated water supply projections associated with several water supply reliability scenarios. For further information on the data, see the Three-year Minimum Supply and Water Shortage Contingency Plan sections.

Table 4. Supply Reliability				
Average/ Normal Water Year 2005 (Volume)	Single Dry Water Year (Volume)	Multiple Dry Water Years		
		Year 1 (Volume) 2006	Year 2 (Volume) 2007	Year 3 (Volume) 2008
35,000	35,000	35,000	29,750	26,250
Unit of Measure: Acre-feet/Year				

Three Year Minimum Water Supply

Experience during the last drought taught SCVWD and its retailers that it is better to keep the water conservation message before the public on a continuous basis rather than wait for a drought to come along before starting public education messages. To this end SCVWD runs advertisements in newspapers and on TV and radio stations throughout the year.

Each year, the SCVWD forecasts a 3-year minimum water supply availability for each of its sources of water, and projects its total water supply for the current and three subsequent years. Based on the water shortage stages and triggers, a water shortage condition may be declared. Refer to SCVWD's Urban Water Management Plan for these projections.

Transfer or Exchange Opportunities

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

Water Transfers

The SCVWD has several exchange or transfer programs in place to assure the reliability of the water supply. See their Urban Water Management Plan.

Water Use Provisions

Law

10631. A plan shall be adopted in accordance with this chapter and shall do all of the following:

10631 (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors including, but not necessarily limited to, all of the following uses:

(A) Single-family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; and (I) Agricultural.

(2) The water use projections shall be in the same 5-year increments to 20 years or as far as data is available.

Past, Current and Projected Water Use

Great Oaks Water Company is required to classify its customers according to the Uniform System of Accounts of the California Public Utilities Commission. Those categories are listed below. Unaccounted water losses average about 5% of total production and are not included in these tables. Table 5 illustrates Past, Current, and Projected Water Use, 1990-2030, in acre-feet per year, and Table 6 illustrates Past, Current, and Projected of customers per year for 1990-2030.

The projections in these tables represent the high end of the range of possible growth. The more realistic projection would be much lower water use and number of connections.

Table 5. Past, Current and Projected Water Use									
Water Use Sectors	1990	1995	2000	2005*	2010	2015	2020	2025	2030/opt
Commercial (including domestic)	8,875	9,687	11,804	11,829	14,786	17,743	20,581	23,462	26,277
Industrial	385	355	484	426	532	638	740	843	944
Public Authorities	200	293	334	369	458	549	636	725	813
Irrigation					600	800	800	500	500
Other (Schools)	425	350	426	300	375	450	522	595	667
Total	9,858	10,685	13,048	12,924	16,751	20,180	23,279	26,125	29,201
Unit of Measure: Acre Feet/Year									

*2005 is forecasted based upon, and equal to, the actual values recorded for 2004.

**Table 6.
Number of Connections by Customer Type**

Customer Type	1990	1995	2000	2005*	2010	2015	2020	2025	2030/opt
Commercial (including domestic)	17,796	18,415	19,942	19,930	24,912	29,895	34,678	39,533	44,222
Industrial	41	53	56	46	57	69	80	91	102
Public Authorities	100	109	115	156	185	234	271	309	346
Irrigation					15	20	25	30	35
Other (Schools)	21	21	21	34	42	51	59	67	75
Total	17,958	18,598	20,134	20,166	25,211	30,269	35,113	40,030	44,780

Residential Sector

In the Great Oaks' service area, residential customers comprise the majority of the various customer classes. With the anticipated development over the next 25 years, the number of residential units is forecasted to reach as many as an additional 36,000. The SCVWD is developing plans to make sure that this anticipated demand is met.

Industrial Sector

Great Oaks serves a small industrial sector, primarily centered on software production and development. The water demand for this sector is not significant as little process water is used. Great Oaks currently serves no computer chip or wafer fabrication plants which use significant amounts of water in their manufacturing process.

Institutional/Governmental Sector

Great Oaks serves a few customers in the institutional/governmental sector, primarily schools and a public hospital.

Landscape/Recreational Sector

There are no large landscapes or recreational users currently in the service area. Great Oaks does serve however, several small public parks operated by the City of San Jose.

Agricultural Sector

There are no customers in Great Oaks' service area presently taking water for agricultural use. However Great Oaks has recently put an agricultural rate into effect to reinstitute this service. While the water supply for the extensive farming in the Coyote Valley and other limited areas is being supplied by farmers' own wells or dry farmed, Great Oaks has been asked to supply water where our infrastructure is present. As development takes place, agricultural use will be replaced by urban use. Maximum demand for this service will constitute less than 5% of Great Oaks pumping capacity.

Supply and Demand Comparison Provisions

Law

10635 (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from the state, regional, or local agency population projections within the service area of the urban water supplier.

Supply and Demand Comparison

Table 7 compares current and projected water supply and demand. It indicates that in average precipitation years, Great Oaks has sufficient water to meet its customers' needs, through 2030. This is based on the continued commitment of the SCVWD to recharge groundwater.

Table 7 Projected Supply and Demand Comparison						
	2005	2010	2015	2020	2025	2030/opt
Supply totals	47,030	50,030	53,030	56,030	59,030	62,030
Demand totals	12,924	16,751	20,180	23,279	26,125	29,201
Difference	34,106	33,279	32,850	32,751	32,905	32,829
Units of Measure: Acre-feet/Year						

In any one dry year, Great Oaks will not need to modify its water supply or demand resources. In the second consecutive dry year, Great Oaks may need to enter into a Stage I water shortage response. In the third consecutive dry year, or in the event of a major system failure, Great Oaks may continue a Stage I water shortage response or move into a Stage II water shortage response. See the Water Shortage Contingency Plan and Three-year Minimum Water Supply sections and Table 8 for more detailed information.

Table 8 presents a supply and demand comparison where demand does not fluctuate in conjunction with a change in supply. This analysis demonstrates that if supply were to be reduced from a water supply shortage, the existing supply is sufficient to meet demands.

Table 8 Single Dry Year and Multiple Dry Water Years					
Water Supply Sources	Current Supply 2005 (Volume)	Single Dry Water Year (Volume)	Multiple Dry Water Years		
			Year 1 (Volume)	Year 2 (Volume)	Year 3 (Volume)
Supply totals	47,030	47,030	47,030	39,976	35,273
Percent Shortage		0%	0%	15%	25%
Demand totals	12,924	12,924	12,924	12,924	12,924
Difference	34,106	34,106	34,106	27,052	22,346
Unit of Measure: Acre-feet/Year					

Water Demand Management Measures

Law

10631 (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:.....

Great Oaks Water Company is not a signatory to the Memorandum of Understanding (MOU) regarding Urban Water Conservation in California and is therefore, not a member of the California Urban Water Conservation Council (CUWCC). However, the water wholesaler, the SCVWD (District), is a signatory and assists Great Oaks in implementing demand management measures.

For the purpose of responding to the Urban Water Management Planning Act, Great Oaks will address the 16 Demand Management Measures. Great Oaks' water conservation programs are listed below. Great Oaks tries to address and comply with all of the BMP targets listed in the CUWCC MOU where applicable or economically feasible.

DMM 1 -- Interior and Exterior Water Audits for Single Family and Multi-Family Customers

In cooperation with SCVWD, Great Oaks has offered free residential water use surveys to single-family and multi-family customers. We have recently focused on the top 20% of water users, but have also continued to offer surveys to any customer who so requests.

SCVWD provides outreach to our customers through print, TV, and radio advertising. Once the customer has contacted us, we arrange for SCVWD to conduct the survey. After the completion of the survey, SCVWD mails a report to the customer and to Great Oaks.

DMM 2 -- Plumbing Retrofit

Through SCVWD, Great Oaks participates in the distribution of showerheads and sink faucet aerators. These devices are available at the company office, and are distributed at community events throughout the year.

DMM 3 -- Distribution System Water Audits, Leak Detection and Repair

Great Oaks has conducted water audits and leak detection and repair for many years. We believe the low unaccounted for water figure, of around 5%, or in many cases less than, is due mainly to prompt distribution system repair.

DMM 4 -- Metering with Commodity Rates

Great Oaks is fully metered for all customer sectors, including meters for single-family residential, multi-family residential, commercial, large landscapes, institutional/governmental facilities and agricultural. Great Oaks has a single tariff rate structure as authorized by the California Public Utilities Commission.

DMM 5 -- Large Landscape Water Audits and Incentives

SCVWD provides irrigation surveys for all of our large landscape customers.

DMM 6 -- Landscape Water Conservation Requirements

Most of Great Oaks' service area is within The City of San Jose. The City has landscape water conservation requirements for new construction which significantly reduces the demand for landscape irrigation.

DMM 7 -- Public Information

Great Oaks promotes water conservation and other resource efficiencies in coordination with SCVWD. SCVWD distributes public information through brochures, community speakers, paid advertising, and many special events every year. Our water bills are designed to show consumption use during the same period last year so customers can determine if their water usage has changed for unexpected reasons.

DMM 8 -- School Education

Great Oaks acts as a resource for schools in the service area to promote water conservation. Teachers organize special student assignments requiring contact with our utility. Discussions, interviews and materials are provided to the students to help the students complete their projects.

DMM 9 -- Commercial and Industrial Water Conservation

Using the resources of SCVWD, Great Oaks provides water use audits to any commercial/ industrial/institutional customer who requests one.

DMM 10 -- New Commercial and Industrial Water Use Review

The City of San Jose Building Department coordinates the implementation of this DMM with Great Oaks. Before a building permit can be issued, Great Oaks must supply the City or County with a "Will Serve Letter," stating that we have reviewed the new construction plans and agree with the proposed water use of the new customer.

DMM 11 -- Conservation Pricing, Water Service and Sewer Service

Great Oaks has a single block rate structure for all customer sectors, except agricultural. This rate design is authorized by the California Public Utilities Commission. At this time, no conservation pricing is authorized by the Commission. Sewer service is provided by the City of San Jose. We provide water usage data to the City for those accounts that are being reviewed for sewer service rate adjustments.

DMM 12 -- Landscape Water Conservation for New and Existing Single Family Homes

As discussed under DMM 6, the City of San Jose has a landscape ordinance that pertains to new single family homes. SCVWD has a demonstration garden, and works with local landscape maintenance companies to promote efficient landscaping practices.

DMM 13 -- Water Waste Prohibition

Great Oaks prohibits water waste under the Rules and Regulations of the California Public Utilities Commission. These rules allow Great Oaks to discontinue service to any customer who is wasting water.

DMM 14 -- Water Conservation Coordinator

Great Oaks integrates the coordination of its water conservation efforts through the office of its Director of Maintenance and Operations. This position coordinates the various conservation programs and provides a single point of contact for Great Oaks.

DMM 15 -- Financial Incentives

Great Oaks and other local agencies cost-share water conservation programs. Financial support for these programs is funded through the pump tax Great Oaks pays to SCVWD.

DMM 16 -- Ultra-low Flush Toilet Replacement

SCVWD has implemented several different Ultra-low Flush Toilet programs. They range from rebates to actual replacement.

Water Shortage Contingency Plan

Preparation for Catastrophic Water Supply Interruption

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

Water Shortage Emergency Response

Great Oaks Water Company has prepared for and can implement several operational contingency plans during a catastrophic interruption of service.

During a regional power outage, Great Oaks can operate some of its pumps on standby-by (diesel & natural gas) electric generators. These generators are strategically located at pumping plants throughout the service area so that all customers can be provided with water service, although some customers may receive water at reduced pressures during the emergency.

After an earthquake, water storage is maintained at our largest storage tank by an earthquake actuated automatic shutoff valve. In the event of an earthquake, the tank is isolated from the system until it is determined that the distribution system is able to handle the pressures from the tank.

Great Oaks is a member of a community-wide utility response group that can transfer available emergency equipment from one member to another during an emergency.

Table 9 summarizes the actions that Great Oaks will take during a water supply catastrophe.

Water Shortage Contingency Ordinance/Resolution

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (h) A draft water shortage contingency resolution or ordinance.

Great Oaks Water Shortage Response

Great Oaks Water Company has no authority to draft such a resolution or ordinance. In place of its own ordinance, Great Oaks relies on the authority of the California Public Utilities Commission to simply declare a water shortage emergency at any time the utility deems necessary. Great Oaks is required to notify the Commission, the California State Department of Health Services, and other public agencies of a water shortage emergency.

Stages of Action

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply and an outline of specific water supply conditions which are applicable to each stage.

Rationing Stages and Reduction Goals

Great Oaks is prepared to implement a four stage rationing plan (see Table 9) to invoke during declared water shortages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage.

Table 9 Water Rationing Stages and Reduction Goals			
Shortage Condition	Stage	Customer Reduction Goal	Type of Rationing Program
Up to 15%	I	15%	Voluntary
15 – 25%	II	25%	Mandatory
25 - 35%	III	35%	Mandatory
35 - 50%	IV	50% or >	Mandatory

Priority by Use

Priorities for use of available potable water during shortages are based on the following hierarchy:

- Minimum health and safety allocations for interior residential needs (includes single family, multi-family, hospitals, and fire fighting and public safety)
- Commercial, industrial, institutional/governmental operations (where water is used for manufacturing and for minimum health and safety allocations for employees and visitors), to maintain jobs and economic base of the community (not for landscape uses)
- Existing landscaping
- New customers, proposed projects

Health and Safety Requirements

In Stage I shortages, customers may adjust either interior or outdoor water use (or both), in order to meet the voluntary water reduction goal. Under Stage II, Stage III and Stage IV mandatory rationing programs, Great Oaks would allow a certain health and safety allotment sufficient for essential interior water use with no habit or plumbing fixture changes.

Stage IV mandatory rationing, which is likely to be declared only as the result of a prolonged water shortage or as a result of a disaster, would require that customers make changes in their interior water use habits (for instance, not flushing toilets unless "necessary" or taking less frequent showers).

Water Shortage Stages and Triggering Mechanisms

Great Oaks must provide the minimum health and safety water needs of the community at all times. The water shortage response is designed to provide a minimum of 50% of normal supply during a severe or extended water shortage. The rationing program triggering levels shown below were established to ensure that this goal is met.

Great Oaks' water source is groundwater. Rationing stages may be triggered by a supply shortage or by contamination in one source or a combination of sources. Specific criteria for triggering the City's rationing stages are shown in Table 10.

Table 10 Water Shortage Stages and Triggering Mechanisms				
Percent Reduction of Supply	Stage I Up to 15%	Stage II 15 - 25%	Stage III 25 - 35%	Stage IV 35 - 50% >

Water Allotment Methods

Great Oaks has established the allocation method of straight percentage reduction for each customer type.

No information exists on the number of people in any given water connection, so a uniform percentage reduction is the most easily implemented plan to use.

The California Public Utilities Commission may order Great Oaks at any time to change its allocation plan if it chooses to do so.

Prohibitions, Consumption Reduction Methods and Penalties

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

10632 (e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

10632 (f) Penalties or charges for excessive use, where applicable.

Mandatory Prohibitions on Water Wasting

The California Public Utilities Commission issues rules and regulations prohibiting the waste of potable water. Great Oaks is required to follow these regulations.

Additional mandatory prohibitions against specific water use practices during water shortages, such as the use of potable water for street cleaning is regulated by the City of San Jose. Great Oaks would adopt such prohibitions for its customers within the City of San Jose.

Excessive Use Penalties

Any customer violating the regulations and restrictions on water use set forth in rules and regulations of the Public Utilities Commission is subject to having its water service discontinued. If water service is disconnected, it shall be restored only upon payment of the reconnect fee set by the Commission.

Great Oaks met its rationing goals of up to 25% reduction without the use of penalties, water banking accounts, or other punitive measures. Our praise of customers' conservation efforts was the single most

effective factor that helped us obtain a slightly higher percentage of conservation than did the City of San Jose Municipal Water Department or the San Jose Water Company.

Comparison figures were published monthly by the District. We relied on the educated and informed good behavior of our customers (plus our praise) to reach our conservation goals during this period, and the program was completely successful. Our customers appreciated not having to comply with punitive measures, and Great Oaks did not incur the significant administrative cost of operating a water banking program. Also after the drought ended, our customers felt kindly and cooperative toward Great Oaks. They didn't hate us for canceling their "banked water" accounts after the drought was officially over.

Our policy of praising customers to get their cooperation to conserve was so effective that we recommend others use the same tactic.

Revenue and Expenditure Impacts and Measures to Overcome Impacts

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier...

10632 (g) [An analysis of the impacts of each of the] proposed measures to overcome those [revenue and expenditure] impacts, such as the development of reserves and rate adjustments.

Great Oaks' revenues and expenditures are set for rate making purposes by the California Public Utilities Commission. In the event that any of the actions or conditions described in subdivisions (a) through (f), of Section 10632, has financial implications requiring rate adjustment; no rate adjustment could be implemented until authorized by the Commission. The Commission would hold public hearings, and determine after thorough investigation what rate adjustments, if any, were appropriate.

Reduction Measuring Mechanism

Law

10632. The plan shall provide an urban water shortage contingency analysis which includes each of the following elements which are within the authority of the urban water supplier:

10632 (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

Mechanism to Determine Reductions in Water Use

Virtually all customers are metered. The mechanism used to determine actual reductions in water use would be calculated at the time the meter is read and billed. In the past, this mechanism has been a calculation based on past use, one year earlier, during the same billing period. This system is fair because it takes into account the varying consumption patterns that are influenced by normal seasonal temperature variations.

Water Recycling

Wastewater System Description

Law

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (a) A description of the wastewater collection and treatment systems in the supplier's service area...

Participation in a Regional Recycled Water Plan

Great Oaks, along with other retailers in the service area of the San Jose/Santa Clara Regional Water Pollution Control Plant, participates in discussions on the expansion of the reclaimed water delivery system. South Bay Water Recycling, a consortium of three cities and eight special districts in north Santa Clara Valley, operates a wholesale recycled water system serving urban landscape irrigation and industrial non-potable demands.

At the present time South Bay Water Recycling (SBWR) has delivery facilities, but has refused to make recycled water available to Great Oaks to use in its service area. The recycled water provided by SBWR contains dangerous compounds that will poison the drinking water aquifers if allowed to be used for agricultural or landscape irrigation. Great Oaks has and will continue to oppose the unconstrained use of this water in our groundwater recharge area.

Wastewater Collection and Treatment

The wastewater collection and treatment infrastructure in Great Oaks' service area is operated by the City of San Jose. The wastewater is treated in the northern portion of the City of San Jose by the San Jose/Santa Clara Water Pollution Control Plant.

Wastewater Generation, Collection & Treatment

Law

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (a) A [...] quantification of the amount of wastewater collected and treated...

South Bay Water Recycling (SBWR)

The SBWR system was constructed primarily to reduce discharges from the San Jose/Santa Clara Water Pollution Control Plant to the Alviso salt marsh, a habitat sensitive to excessive freshwater inflows during summer months. The existing SBWR system is designed to serve up to 15 million gallons per day of recycled water, and has an annual recycled water demand of roughly 9,000 acre-feet per year.

Wastewater Disposal and Recycled Water Uses

Law

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (a) A description of the [...] methods of wastewater disposal.

10633 (b) A description of the recycled water currently being used in the supplier's service area, including but not limited to, the type, place and quantity of use.

10633 (c) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

10633 (d) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years.

Recycled Water Currently Being Used

Currently there is no recycled water being used in the service area of Great Oaks Water Company. If SBWR makes recycled water available to customers in our service area, Great Oaks may supply this water to appropriate customers.

Potential Uses of Recycled Water

There are several potential customers who could benefit from using recycled water in Great Oaks' service area. These customers are golf courses, City and County parks, schools, large landscaped areas in multiple residential complexes, industrial, cooling towers and dual plumbed facilities. However, because most of Great Oaks service area does not have protective clay layers between the surface and the aquifers from where the drinking water is drawn, the Water District has agreed that current quality of recycled water is not appropriate for use on the ground over unconfined aquifers. It has been approved for use within buildings with dual plumbing. Great Oaks will supply recycled water to appropriate customers.

While no present customers are being served, an estimate of recycled water demand is presented in Table 11.

Possible Recycled Water Customers								
Destination	Treatment Level	Time of use	2005	2010	2015	2020	2025	2030/ opt
Golf Courses	Secondary	March – Nov.	0	866	866	866	866	866
Schools	Secondary	March – Nov.	0	8	10	12	14	16
Other Irrigators	Secondary	All Year	0	2	2.5	3	3.5	4
Total	Total		0	876	878.5	881	883.5	886
Units of Measure: Acre-feet/Year								

Encouraging Recycled Water Use

Law

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (e) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

The potential for the use of recycled water as a water source in the service area of Great Oaks has been discussed in the previous section.

Financial incentives that have been taken in other service areas of SBWR include arrangements with the retailers for special pricing of the reclaimed water. The common goal of the retailers is to be able to market the reclaimed water at a discount of 25% off the price charged for potable water. This incentive has been sufficient in the past to attract customers

It is expected that when recycled water becomes available in our service area, we will market the water using a similar incentive.

The estimates of recycled water demand in Table 11 have taken into account the effect of the 25% price discount on potential demand.

Recycled Water Optimization Plan

Law

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. To the extent practicable, the preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies and shall include all of the following:

10633 (f) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems and to promote recirculating uses:

Plan for Optimizing the Use of Recycled Water

The City of San Jose has building ordinances in place for new construction that include the construction of reclaimed water distribution systems on large turf areas. When reclaimed water becomes available at a quality level that can be safely used over our drinking water aquifers, Great Oaks will connect the reclaimed water to these facilities.

Exhibit D

City of San Jose Request for Water Supply Assessment



Department of Planning, Building and Code Enforcement
JOSEPH HORWEDEL, ACTING DIRECTOR

March 20, 2006

Great Oaks Water Company
Attn: Alan Gardner
15 Great Oaks Boulevard, Suite 100
San José, CA 95119

**SUBJECT: WATER SUPPLY ASSESSMENT FOR DRAFT ENVIRONMENTAL
IMPACT REPORT FOR THE COYOTE VALLEY SPECIFIC PLAN PROJECT
(FILE NO: PP05-102)**

Dear Mr. Gardner:

As the Lead Agency, the City of San José is preparing an Environmental Impact Report (EIR) for the Coyote Valley Specific Plan project ("CVSP Project"). A description of the proposed project, conceptual land use plan and location map are attached. The CVSP Project is anticipated to have a build-out horizon of approximately 40 years. Pursuant to State law (Water Code sections 10910-10914) and the California Environmental Quality Act (CEQA) Guidelines, the City of San José is requesting that each public water system that may supply water to the CVSP Project provide an analysis complying with the requirements of Water Code sections 10910-10914, including required supporting documentation, of whether the system has adequate water supply to serve this project.

In order to ascertain whether Great Oaks may supply water to the CVSP Project, we are asking that Great Oaks inform the City, by March 31, 2006, whether the projected water demand associated with the CVSP Project (see attached current project description) was accounted for in Great Oaks' most recent Urban Water Management Plan (UWMP). You may direct this information to Darryl Boyd, Principal Planner of my staff, via email (darryl.boyd@sanjoseca.gov) or by surface mail at the address printed at the bottom of this page.

If Great Oaks Water may supply water to this project, please provide the City with a Water Supply Assessment (WSA) prepared in conformance with State requirements referenced above. In accordance with State law, if the projected water demand associated with the CVSP Project was accounted for in Great Oaks' most recent UWMP, certain information in the UWMP may be incorporated into the WSA. The WSA should identify whether the projected water supply (based on normal, single dry, and multiple dry years) is adequate to meet the demand projected for the ultimate build-out of the specific plan as well as existing and planned future water users.

MAR 22

Mr. Allan Gardner

Subject: Water Supply Assessment for the Coyote Valley Specific Plan (PP05-102)

March 20, 2006

Page 2 of 2

The WSA should include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system. In addition, the following information should be provided in the WSA:

- Written contracts or other proof of entitlement to an identified water supply;
- Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system;
- Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply; and
- Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

It is assumed that the water supplies for this project will include groundwater, which is regulated by the Santa Clara Valley Water District (SCVWD). Please also provide the following additional information in your analysis:

- A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project;
- A description of any groundwater basin or basins from which the proposed project will be supplied;
- A detailed description and analysis of the amount and location of groundwater pumped by the public water system;
- An analysis of the sufficiency of the groundwater from the basin or basins from which the project will be supplied to meet the projected water demand associated with the proposed project.

Under California Water Code Section 10910(g)(1), Great Oaks' WSA for this Project due is due 90 days after receipt of this request (late June). However, due to the EIR schedule, we are requesting an earlier response. The WSA will be included as an appendix to the Draft EIR, which is scheduled to begin public circulation in September 2006.

To facilitate the preparation of the WSA, we would like to meet with you or the appropriate staff person from your company to discuss the project, the WSA, and EIR schedule at your earliest convenience. Please contact Darryl Boyd by email or phone (408/535-7898) to arrange this meeting. We intend to also invite our EIR consultant and Jim Crowley of the SCVWD to this meeting to provide guidance and input to the preparation of the WSA.

Mr. Allan Gardner

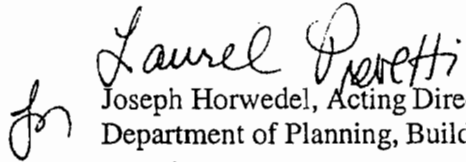
Subject: Water Supply Assessment for the Coyote Valley Specific Plan (PP05-102)

March 20, 2006

Page 3 of 2

We look forward to working with you. Thank you for your assistance in this matter.

Sincerely,


Joseph Horwedel, Acting Director
Department of Planning, Building & Code Enforcement

Attachments

cc: Jim Crowley



Department of Planning, Building and Code Enforcement
JOSEPH HORWEDEL, ACTING DIRECTOR

rec
6-29-06
1PM
MP

June 26, 2006

To Whom It May Concern:

**SUBJECT: EXTENSION REQUEST REGARDING THE WATER SUPPLY ASSESSMENT
FOR DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE COYOTE
VALLEY SPECIFIC PLAN PROJECT (FILE NO: PP05-102)**

On June 15, 2006, the City of San Jose received a request for a thirty day (30) extension for the submittal of a Water Supply Assessment (WSA) for the Coyote Valley Specific Plan (CVSP) project. In order to ensure that all potential purveyors are provided equal opportunity to prepare and conclude their analysis, the City of San Jose is granting the requested extension, ending on **July 21, 2006** [pursuant to Water Code Section 10910(g)(2)].

As stated in our previous letter, the WSA should include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system. In addition, the following information should be provided in the WSA:

- Written contracts or other proof of entitlement to an identified water supply;
- Copies of a capital outlay program for financing the delivery of a water supply that has been adopted by the public water system;
- Federal, State, and local permits for construction of necessary infrastructure associated with delivering the water supply; and
- Any necessary regulatory approvals that are required in order to be able to convey or deliver the water supply.

It is assumed that the water supplies for this project will include groundwater, which is regulated by the Santa Clara Valley Water District (SCVWD). Please also provide the following additional information in your analysis:

- A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project;
- A description of any groundwater basin or basins from which the proposed project will be supplied;
- A detailed description and analysis of the amount and location of groundwater pumped by the public water system;

- An analysis of the sufficiency of the groundwater from the basin or basins from which the project will be supplied to meet the projected water demand associated with the proposed project.

Please contact Planning staff if you would like to meet to discuss the project further and ensure that your staff has the necessary information to complete your analysis. Please contact Darryl Boyd by email or phone (408/535-7898) to arrange this meeting.

Referenced in our previous letter, staff intends to complete water supply assessment process prior to circulating the public draft of the CVSP EIR. Therefore, we are requesting that your WSA analyses be submitted prior to the above deadline in order to maintain our project schedule. We look forward to working with you. Thank you for your assistance in this matter.

The City of San Jose requested water supply assessments from the San Jose Water Company, Great Oaks Water Company, and the City of San Jose Municipal Water System.

Sincerely,



Mike Mena
Senior Planner
City of San Jose Planning Division
EEHVS/ CVSP Team
200 East Santa Clara
San Jose, CA 95113
408/ 535-7907

cc: *Great Oaks Water Company*, Attn: Alan Gardner, 15 Great Oaks Blvd, Suite 100
San Jose, CA 95119
San Jose Municipal Water, Attn: Mansour Nasser, 3025 Tuers Road, San Jose, CA 95121
San Jose Water Company, Attn: Bill Tuttle, 374 West Santa Clara Street, San Jose, CA 95196-001
Santa Clara Valley Water District, Attn: Jim Crowley, 5750 Almaden Ex., San Jose, CA 95118
City of San Jose Attorney's Office, Attn: Vera Todorav, Sr. Deputy City Attorney
City of San Jose Planning Division, Attn: Laurel Prevetti, Deputy Director PBCE
City of San Jose Planning Division, Attn: Darryl Boyd, Principal Planner
City of San Jose Planning Division, Attn: Salifu Yakubu, Principal Planner
City of San Jose Planning Division, Attn: Joe Horwedel, Acting Director PBCE

**APPENDIX C: COYOTE VALLEY WATER SUPPLY ASSESSMENT PREPARED BY
San Jose Water Company**

SAN JOSE WATER COMPANY COYOTE VALLEY WATER SUPPLY ASSESSMENT

June 2006



**Prepared by:
Jacob Walsh**

**With Assistance From:
Bill Tuttle, P.E.
Nicole Dunbar, P.E.**

**Under Direction of:
Richard Pardini, P.E.**



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Appendix

A	SCVWD’s Water Supply Availability Analysis for the Coyote Valley Specific Plan
B	Water Demands for Coyote Valley Specific Plan by HMM Engineers
C	SJWC’s License from the State Water Board
D	SJWC and SCVWD 3-Year Treated Water Purchase Contract
E	SCVWD’s Integrated Water Resource Planning Study Draft
F	SCVWD’s 2005 Urban Water Management Plan
G	SJWC’s Water Shortage Contingency Plan (January 1992)
H	SJWC’s 2005 Urban Water Management Plan

SAN JOSE WATER COMPANY

Coyote Valley Water Supply Assessment

San Jose Water Company (SJWC) is one of the largest privately owned water systems in the United States, providing high-quality water and exceptional customer service to nearly one million residents of Santa Clara County in Northern California since established in 1866.



Purpose

With the goal of describing the relationship between existing and future water supplies for the Coyote Valley service area, this Water Supply Assessment (WSA) presents SJWC's strong ability to provide a diverse water supply to match planned build-out water demands under both normal and dry years. This comprehensive document is designed to promote collaborative planning between water suppliers, wholesalers, and local jurisdictions, and in turn, assist the San Jose City Council in making decisions related to water supply to support the Coyote Valley Specific Plan.

This WSA is written in response to California Senate Bill 610 (SB 610); legislation which requires water retailers to demonstrate whether their water supplies are sufficient for certain proposed subdivisions and large development projects subject to the California Environmental Quality Act. SB 610 requires that a WSA be prepared by the local water retailer and submitted within 90 days to the requesting agency.

SJWC provides a comprehensive water supply plan for Coyote Valley that will best meet Santa Clara Valley Water District's (SCVWD) goals and objectives for water supply management with sound engineering, a high level of service, redundancy and diversity of water supply with minimal impact to Santa Clara County and SJWC's water resources.

Background



1970 to potentially provide water to residents on Metcalf Road. The property contained a cistern well at one time for this purpose.

The City of San Jose requested a WSA from SJWC for the Coyote Valley area, which consists of 7,000 acres of mostly undeveloped land in southern San Jose. This area is generally bounded by Tulare Hill to the north, Highway 101 to the east, the City of Morgan Hill to the south, and the Santa Cruz foothills to the west.

SJWC has long had an interest in supplying water to Coyote Valley. SJWC purchased land in Metcalf Road. The property contained a cistern

SAN JOSE WATER COMPANY

Coyote Valley Water Supply Assessment

Smart growth decisions for development in this area began over 20 years ago. The community and Coyote Valley Specific Plan Task Force (Task Force) have shaped the urban design concept for Coyote Valley based upon an environmental footprint sensitive to the area's unique natural features.

The City of San Jose's vision for Coyote Valley is a planned mixed-use community with a minimum of 25,000 housing units and 50,000 new jobs. The location and size of Coyote Valley is such that this development is essentially a new small city.

Service Area & Population

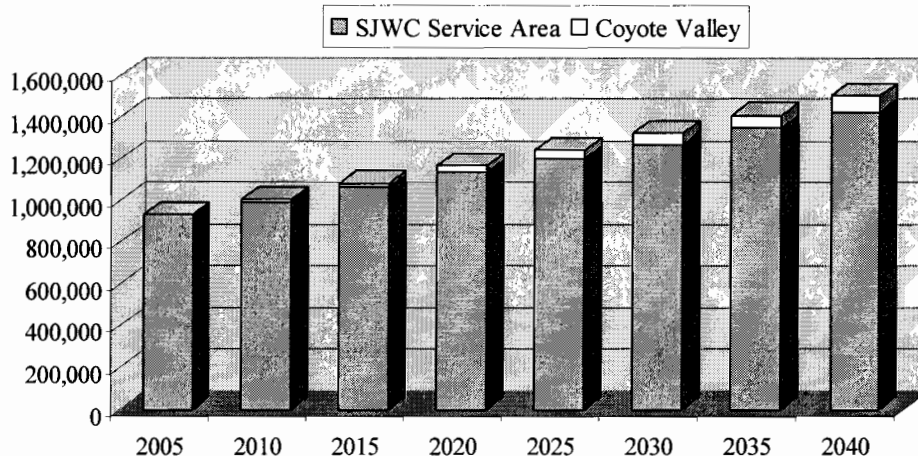
SJWC's service area spans 138 square miles, including most of the City of San Jose and Cupertino, the entire cities of Campbell, Monte Sereno, Saratoga, the Town of Los Gatos, and parts of unincorporated Santa Clara County.

The current and projected population of SJWC's service area is shown in the table and chart below. These population projections are based on the Association of Bay Area Governments' (ABAG) 2003 population forecast and the Coyote Valley anticipated build-out population of 75,000, expected in the year 2040.



Table 1: Current and Projected SJWC Service Area Population

	2005	2010	2015	2020	2025	2030	2035	2040
ABAG 2003 Population Projection	935,300	995,900	1,062,500	1,137,600	1,202,100	1,273,200	1,348,500	1,428,300
CV Specific Plan Population Projection	-	10,700	21,400	32,100	42,800	53,500	64,200	75,000
Total SJWC Service Area Population	935,300	1,006,600	1,083,900	1,169,700	1,244,900	1,326,700	1,412,700	1,503,300



SAN JOSE WATER COMPANY

Coyote Valley Water Supply Assessment

Climate

The San Jose area experiences a low-humidity climate with an average of 14 inches of rain annually. Daily average temperatures range from the mid 60's to the high 80's (°F) in spring and summer and from the mid 40's to mid 50's (°F) in the winter. Most of the precipitation in the area occurs between November and March with December and January typically being the wettest months. Further climate data is listed in the table below.

Table 2: Climate Data

	Jan	Feb	Mar	Apr	May	Jun
Average Max Temperature (°F)	58.0	62.1	65.6	69.8	74.4	79.3
Average Min Temperature (°F)	41.5	44.2	45.7	47.6	51.2	54.8
Average Precipitation (in)	2.95	2.51	2.23	1.08	0.40	0.09
Evapotranspiration (in)	1.35	1.87	3.45	5.03	5.93	6.71

	Jul	Aug	Sept	Oct	Nov	Dec	Annual
Average Max Temperature (°F)	82.1	81.8	80.7	74.6	65.1	58.1	71.0
Average Min Temperature (°F)	56.9	57.0	56.2	51.9	46.0	41.7	49.5
Average Precipitation (in)	0.03	0.08	0.20	0.74	1.75	2.44	14.49
Evapotranspiration (in)	7.11	6.29	4.84	3.61	1.80	1.36	49.35

Past, Current and Future Water Use



The majority of connections to SJWC's distribution system are either residential or commercial. SJWC also provides water to industry, municipal, private fire services, and fire hydrant connections.

According to "Santa Clara Valley Water District's Water Supply Availability Analysis for the Coyote Valley Specific Plan" (Appendix A), anticipated demands are broken into four categories: residential, employment, greenbelt and community uses.

The Coyote Valley development has the opportunity to become a model for conservation. City regulated aggressive conservation in this development would translate into water usage savings beyond the anticipated demand predicted in this WSA. This water supply assessment will show the benefits and results of using aggressive conservation, and assumes aggressive conservation measures are used for Coyote Valley. Future residential demand by SCVWD, based on full build-out of 25,000 homes with a demand assumption of 300 gallons per home per day, will be approximately 8,400 AF/yr (one acre-foot of water is about 325,000 gallons). Future employment demands based on 50,000 new jobs with a demand assumption of 70 gallons per employee per day, results in an anticipated demand of approximately 4,000 AF/yr.

Table 3: Build-Out Demand By SCVWD

Demand Type	Acre-ft/yr
Residential	8,400
Employment	4,000
Greenbelt	4,000
Community Uses	4,000
Total	20,400

SAN JOSE WATER COMPANY

Coyote Valley Water Supply Assessment

The City of San Jose 2020 General Plan identifies the Greenbelt as a permanent non-urban buffer with demand usage expected to remain consistent with existing conditions for approximately 4,000 AF/yr. Community uses, identified as large landscape areas, parks, schools, right-of-ways and open spaces are estimated to be approximately 4,000 AF/yr in Coyote Valley.

Projected water demands provided by HMH Engineers for the Coyote Valley Specific Plan (Appendix B), differ slightly from SCVWD's total anticipated demand. HMH Engineers present water demands for the Coyote subbasin as being associated with four categories: Coyote Valley Specific Plan, Greenbelt, outside planned area, and the Metcalf Energy Center. HMH Engineers projects 26,400 homes at build-out and 55,800 new jobs.

Anticipated water demands for the Coyote Valley Specific Plan include: residential, employment, retail, public facilities, schools, parks, landscaping, libraries, fire stations and Coyote Lake. In the Coyote Valley Specific Plan, HMH Engineers calculate this demand to be approximately 12,100 AF/yr. The Greenbelt as identified by HMH Engineers is expected to require up to 4,200 AF/yr, and includes the planned open space preservation and agricultural strategies which may be implemented in conjunction with development in Coyote Valley, as well as existing uses by the Coyote Creek Golf Courses. The City of Morgan Hill's Sphere of Influence includes a portion of the Coyote Valley subbasin and will need approximately 1,800 AF/yr. At full build-out the Metcalf Energy Center is forecasted to use 600 AF/yr of potable water, and an additional 3,700 AF/yr of recycled water.

Table 4: Build-Out Demand By HMH Engineers

Demand Type	Acre-ft/yr
Coyote Valley Specific Plan	12,100
Greenbelt	4,200
Outside Planned Area	1,800
Metcalf Energy Center - Potable Water	600
Potable Water Total	18,700

SCVWD demand assumptions project an anticipated usage of approximately 20,400 AF/yr of potable water at build-out, while the Coyote Valley Specific Plan as prepared by HMH Engineers forecasts a potable water demand of approximately 18,700 AF/yr.

To be conservative, SJWC has applied the more recent population and employment projections to SCVWD's methodology to obtain Table 5. SJWC will be able to provide 21,300 AF/yr of potable water to Coyote Valley from several reliable sources. SJWC can also facilitate distribution and metering of recycled water throughout Coyote Valley.

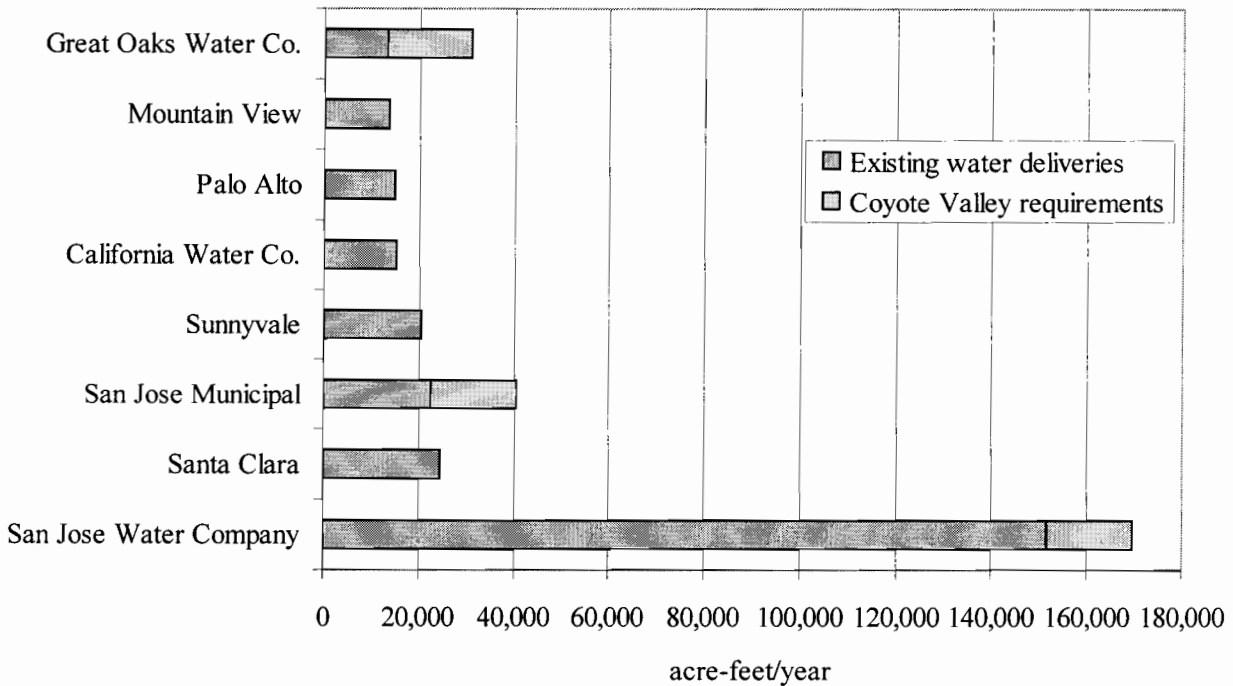
Table 5: Build-Out Demand Used By SJWC

Demand Type	Acre-ft/yr
Residential	8,900
Employment	4,400
Greenbelt	4,000
Community Uses	4,000
Total	21,300

As shown in the following graph, the anticipated 21,300 acre-feet/year (AF/yr) demand associated with Coyote Valley represents only about 14% of the existing SJWC supply. A water company the size of SJWC can most readily absorb this increase in usage while continuing to provide high-quality water and exceptional customer service to the rest of SJWC's service area.

SAN JOSE WATER COMPANY
Coyote Valley Water Supply Assessment

Largest Water Retailers in Santa Clara County (2005)



The total number of SJWC future connections is calculated using historical trends for new service connections and the anticipated demand figures in the Coyote Valley development. SJWC foresees a 0.4% annual service connection growth rate in the existing SJWC service area and an additional 26,400 residential units by 2040 in Coyote Valley. Under the City of San Jose's vision for 55,800 industry driving jobs, SJWC assumes a 90/10 water usage split within the employment category between business and industry. At build-out this assumed split will create an additional 1,676 business and 48 industrial service connections in Coyote Valley.

For this WSA, SJWC assumes the number of connections per customer type follows a linear path between 2006 and 2040. A more rapid growth would accelerate the recommendations made in this document. The table below breaks out the number of connections based on customer type, inclusive of planned Coyote Valley connections.

Table 6: Number of Water Use Connections For SJWC Including Coyote Valley

Customer Type	2005	2010	2015	2020	2025	2030	2035	2040
Residential	193,106	200,771	208,514	216,336	224,243	232,229	240,302	248,464
Business	19,626	20,261	20,904	21,555	22,215	22,883	23,560	24,245
Industrial	69	77	86	94	102	111	119	127
Public Authority	1,677	1,711	1,745	1,780	1,816	1,853	1,890	1,928
Resale	30	31	31	32	32	33	34	34
Other	266	271	277	282	288	294	300	306
Total	214,774	223,122	231,557	240,081	248,696	257,403	266,205	275,104

SAN JOSE WATER COMPANY

Coyote Valley Water Supply Assessment

The following table shows the estimated amount of water supplied to SJWC's distribution system from each source in 2005 as well as projections until 2040. Future usage was calculated using: the projected ABAG 2003 population forecast; Task Force population figures; and the water use sectors number of connections listed in the table above. The anticipated future usage includes the additional 3,267 AF/yr needed for the North First Street project scheduled for development between 2010 and 2025. The 21,300 AF/yr associated with Coyote Valley is assumed to increase linearly to build-out between 2006 and 2040.

Table 7: SJWC Water Use by Customer Type (acre-feet/year)

Customer Type	2005	2010	2015	2020	2025	2030	2035	2040
Residential	86,772	94,322	102,430	111,326	119,241	127,108	136,055	145,488
Business	46,377	50,012	53,945	58,298	62,124	66,215	70,809	75,660
Industrial	645	846	1,050	1,262	1,464	1,576	1,719	1,868
Public Authority	8,387	8,931	9,528	10,201	10,780	11,417	12,143	12,914
Resale	774	824	880	942	995	1,054	1,121	1,192
Other	218	1,376	2,534	3,695	4,852	6,011	7,173	8,336
Total	143,173	156,311	170,367	185,724	199,456	213,381	229,020	245,458

SJWC total demand is not limited to the above metered customer use. Between six and seven percent of the water produced (pumped, treated, or purchased) is unaccounted for, and as a result, is not billed. Unaccounted for water includes authorized unmetered uses including fire fighting, main flushing and public use. The remaining unaccounted for water is attributed to meter reading discrepancies, reservoir cleaning, malfunctioning valves, leakage and theft. The following table shows the actual amount of total system demand in 2005 and projects the amount through 2040.

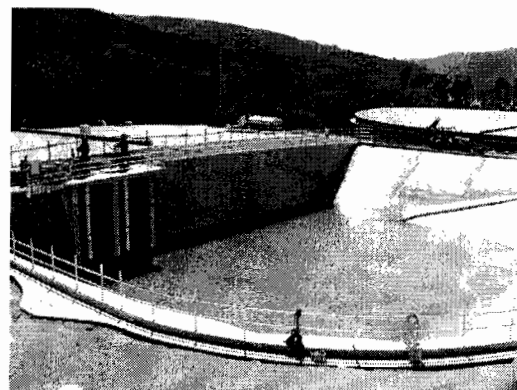


Table 8: SJWC Total System Demand (acre-feet/year)

	2005	2010	2015	2020	2025	2030	2035	2040
Customer Metered Demand	143,173	156,311	170,367	185,724	199,456	213,381	229,020	245,458
Unaccounted for Water	9,767	10,942	11,925	13,000	13,962	14,937	16,032	17,182
Total System Demand	152,940	167,253	182,292	198,724	213,418	228,318	245,052	262,640

Water Rights, Contracts and Entitlements

SJWC has “pre-1914 surface water rights” to raw water in Los Gatos Creek and local watersheds in the Santa Cruz Mountains. Prior to 1872, appropriative water rights could be acquired by simply taking and beneficially using water. In 1914, the Water Code was adopted and it grandfathered in all existing water entitlements to license holders. SJWC filed for a license in 1947 and was granted license number 10933 (Appendix C) in 1976 by the State Water Resources Control Board to draw 6240 AF/yr from Los Gatos Creek. SJWC has upgraded the collection and treatment system that draws water from this watershed which has increased the capacity of this entitlement to approximately 11,200 AF/yr for an average rain year.



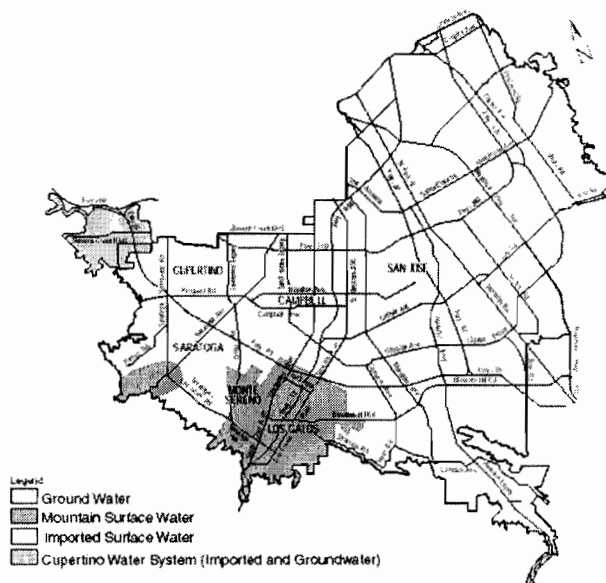
In 1981, SJWC entered into a 70-year master contract with SCVWD for the purchase of treated water. The contract provides for rolling three-year purchase schedules establishing fixed quantities of water to be purchased during each period. The maximum peak day rate for delivery of water from SCVWD under the 2004 - 2005 schedule is 108 MGD. The water is treated at one of the three SCVWD-operated treatment plants (Rinconada, Penitencia and Santa Teresa). SJWC and SCVWD currently have a three year treated water contract (Appendix D) that covers 2005 – 2008, with contract supply ranging from 67,504 AF/yr in 2005 to 69,039 AF/yr in 2008.

SJWC asks for and receives underground water rights in conjunction with new developments. SJWC has the right to withdraw groundwater from aquifers below said property when in compliance with SCVWD’s permitting requirements. In Santa Clara County, this right is subject to a groundwater extraction fee levied by SCVWD based on the amount of groundwater pumped into SJWC’s distribution system. SJWC generally uses the most economically source of water, which is largely determined by SCVWD’s groundwater extraction fee rates and contracted water rates.

Sources of Water – SJWC System

SJWC has three sources of supply: groundwater, imported treated surface water and local surface water. A map of where each source is the predominant source is shown to the right.

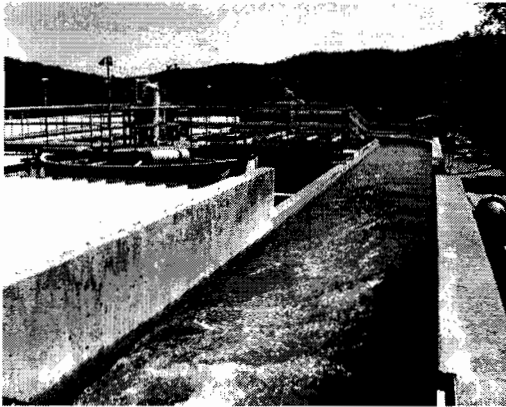
On average, groundwater comprises just over one third of SJWC’s water supply. Ninety-four active and ten stand-by wells pump water from the major water-bearing aquifers of the Santa Clara Valley subbasin. These aquifers are recharged naturally by rainfall and streams, and artificially mainly by recharge ponds operated by SCVWD.



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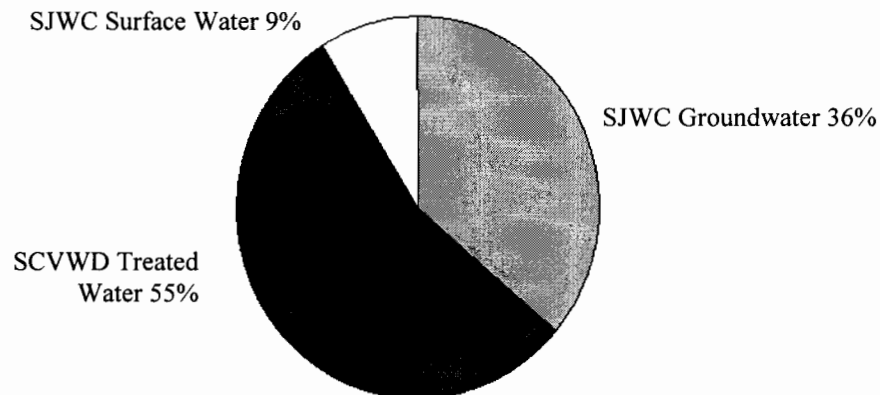
Coyote Valley Water Supply Assessment

SJWC is under contract with SCVWD in the purchase of just over fifty percent of the needed water supply. This water originates from several sources including local reservoirs, the State Water Project and the federally funded Central Valley Project San Felipe Division. Water is piped into SJWC's system at various turnouts after it is treated at one of the three SCVWD water treatment plants (Rinconada to the west side pipeline and Penitencia and Santa Teresa to the east side pipeline).



SJWC's final source of supply is from surface water in the local watersheds of the Santa Cruz Mountains. It provides approximately five to ten percent of the water supply depending on the amount of annual rainfall. A series of dams and automated intakes collect the water released from SJWC's lakes. The water is then sent to SJWC's Montevina Filter Plant (shown in the photo to the left) for treatment prior to entering the distribution system. SJWC's Saratoga Treatment Plant draws water from a local stream which collects water from the nearby Santa Cruz Mountains. The pie chart below shows SJWC's 2004 supply source breakdown.

SJWC Sources of Water for 2004



The following table shows the actual amount of water supplied to SJWC's distribution system from each source in 2005 as well as projections until 2040. The amount of surface water for 2005 and forward is based on a long term average for the past 23 years. The groundwater and SCVWD Treated Water projections include SJWC's plan to acquire additional water needed for development projects by installing production wells within the distribution system, by purchasing additional treated water from SCVWD and recycled water from the South Bay Water Recycling Program. The overall long-term strategy for groundwater as discussed in the 2003 SCVWD Integrated Water Resource Planning Study (IWRP) Draft (Appendix E) is to maximize the amount of water available in the groundwater basins to protect against drought and emergencies. SCVWD seeks to maximize the use of treated local and import water when available.



SAN JOSE WATER COMPANY

Coyote Valley Water Supply Assessment

Table 9: Current and Planned Water Supply – With Additional Conservation (AF/yr)

	2005	2010	2015	2020	2025	2030	2035	2040
SCVWD Treated Water	84,258	92,618	101,703	112,181	120,921	129,868	140,648	152,303
Groundwater - S.C. Valley Subbasin	57,389	60,911	64,433	67,956	71,478	75,000	78,522	82,044
Groundwater - Coyote Subbasin	0	1,860	3,720	5,580	7,440	9,300	11,160	13,000
Recycled Water – Coyote Valley	0	571	1,143	1,714	2,286	2,857	3,429	4,000
Local Surface Water	11,293	11,293	11,293	11,293	11,293	11,293	11,293	11,293
Total w/out Conservation	152,940	167,253	182,292	198,724	213,418	228,318	245,052	262,640
Additional Conservation	0	-4,886	-10,098	-15,679	-21,260	-27,506	-34,006	-40,506
Total with Conservation	152,940	162,367	172,194	183,045	192,158	200,812	211,046	222,134

Additional conservation assumes an overall increase in conservation of 3% every 5 years throughout the existing SJWC service area beginning in the year 2010. Additional conservation will lower the actual groundwater and SCVWD treated water needs as appropriate. Added conservation is anticipated due to an increase in the use of ultra low flush toilets, low flow showerheads, individual conservation, and the reduction in landscaping due to development. This conservation is assumed to be spread among the residential and business categories in proportion to their anticipated usage. The groundwater quantities in the Santa Clara Valley and Coyote subbasins were capped at 75,000 in 2030, and 13,000 AF/yr (assuming maximum recharge) in 2040 respectively based on meetings with SCVWD.

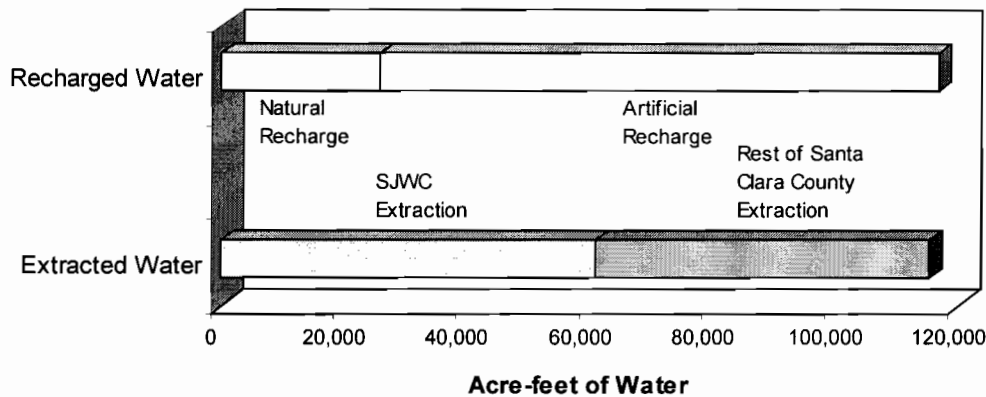


Groundwater Analysis – SJWC System

SJWC draws water from the Santa Clara Valley subbasin (basin) in the north part of Santa Clara County. The basin extends from Coyote Narrows at Metcalf Road to the County's northern boundary. It is bounded on the west by the Santa Cruz Mountains and on the east by the Diablo Range; these two ranges converge at the Coyote Narrows to form the southern limit of the basin. The basin is 22 miles long and 15 miles wide, with a surface area of 225 square miles.

According to SCVWD, 115,358 acre-feet of groundwater were extracted from the basin in 2001. SCVWD estimates that 26,000 acre-feet were naturally recharged to the basin and 90,700 acre-feet were artificially recharged to the basin, mainly through recharge ponds. The following chart shows the water balance of the basin in 2001.

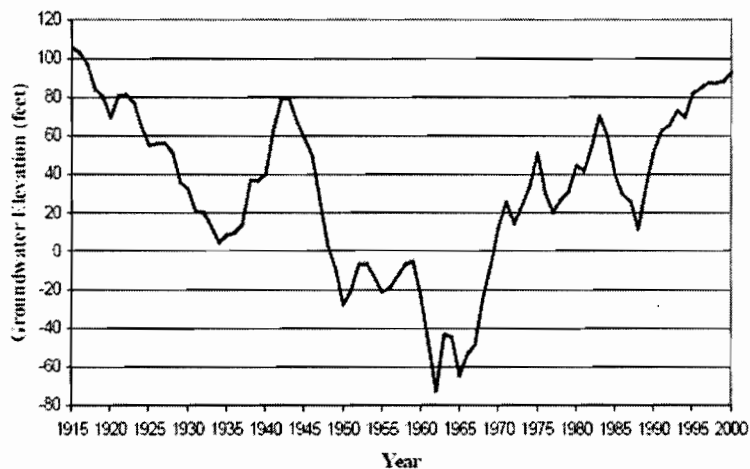
Santa Clara Valley Groundwater Basin Water Balance (2001)



The groundwater elevation in the basin has been steadily on the rise for the past 40 years under the management of the SCVWD. The following chart shows the groundwater elevation since 1915 using mean sea level as the datum. SCVWD has set up a successful artificial recharge system employing local reservoirs, percolation ponds, and an injection well to supplement the natural recharge of the basin to prevent overdraft. The water table in the northern portion of the basin is so close to the surface, some buildings with basements or parking garages have been flooded.

High groundwater levels are a result of: less pumping, an increased use of imported water, and recharge of water into the aquifer by SCVWD. The groundwater basin is currently “full” and prepared for the effects of a multi-year drought. The shallow groundwater level varies annually with the peak usually occurring around May, a few months after the typical peak monthly rainfall in January.

Groundwater Elevations in San Jose Index Well



SCVWD has advised SJWC against significantly increasing groundwater use in the future. SJWC has discussed the projected increases in supply from groundwater and district treated water with SCVWD. The SCVWD’s 2005 UWMP (Appendix F) states operational storage capacity of the basin is estimated to be 350,000 acre-feet and groundwater pumping in the basin should not exceed a maximum of 200,000 AF/yr to avoid land subsidence. SCVWD’s 2003 IWRP

states “although supplies are adequate to meet needs in wet and average years, the expected dry-year shortages will grow over time from approximately 50,000 AF/yr in 2010 to 75,000 AF/yr in 2040.” SCVWD’s IWRP also states additional recharge capacity is needed to maintain groundwater as a reliable source now and in the future. Based on this, SCVWD has suggested groundwater pumped by SJWC not exceed 75,000 AF/yr in 2030 in the basin. Currently SJWC is pumping about 58,000 AF/yr from the Santa Clara Valley subbasin.

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Coyote Valley Water Supply Assessment

Groundwater from the basin is a substantial source of water for SJWC's entire distribution system. In the past five years, groundwater has been the source for approximately one third of SJWC's total supply. The following table shows the groundwater SJWC pumped from the basin for 2000 – 2004.

Table 10: Amount of Groundwater Pumped (AF/yr)

Basin Name	2000	2001	2002	2003	2004
Santa Clara Valley Subbasin	60,707	65,545	56,475	49,594	55,519
% of Total Water Supply	39.2%	42.4%	36.3%	33.6%	36.6%

Based on SJWC's projections, groundwater will continue to be a vital source of supply, comprising just about 37 percent on average of the total water supply by 2040. The following table shows groundwater pumping projections and groundwater as a percentage of total supply until 2040.

Table 11: Amount of Groundwater Projected to be Pumped (AF/yr)

Basin Name	2005	2010	2015	2020	2025	2030	2035	2040
Santa Clara Valley Subbasin	57,389	60,911	64,433	67,956	71,478	75,000	78,522	82,044
% of Total Water Supply	37.5%	37.5%	37.4%	37.1%	37.2%	37.3%	37.2%	36.9%

Sources of Water – Coyote Valley

SJWC will work closely with SCVWD in implementing a plan consistent with their goals and objectives. The "Water Supply Availability Analysis for the Coyote Valley Specific Plan" dated April 2005 prepared by SCVWD outlines several alternatives as summarized in the table on the next pages.

WATER SUPPLY AVAILABILITY OPTIONS SUMMARY
From Santa Clara Valley Water District's
"Water Supply Availability Analysis for the Coyote Valley Specific Plan"

Option	Title	Summary	Advantages	Disadvantages	SJWC Comments
1	Recycled water for irrigation and non-potable uses	There is the potential capacity for 4,000 ac-ft/year of recycled water for public landscape irrigation, and an additional 1,000 ac-ft/year for the greenbelt area. Dual plumbing of residential yards and businesses would create even more demand.	Offsets demand for groundwater, available in dry years, environmental benefits	Needs piping system to feed users, need expensive advanced treatment of recycled water, may need added feed pipe and/or local scalping plant for full potential	SJWC will fully support all efforts to use recycled water. SJWC already is a recycled water retailer for the City of San Jose.
2	Surface water delivery with a new water treatment plant	A new water treatment plant to serve South County.	Alternative to groundwater, redundancy of water source	High cost to build and maintain, source water would be from Coyote Creek or raw water from Central Valley Project (CVP) - both susceptible to drought	Assuming SCVWD does not want to build a plant, not a preferred option by SJWC due to cost, but option is open. SJWC currently operates two water treatment plants.
3	Diversion of groundwater from the Santa Clara subbasin	Install new pumps in the Santa Clara subbasin to pump groundwater to be delivered to Coyote Valley.	Provides access to larger water basin, a redundant source of groundwater	Impacts users of Santa Clara subbasin, provides lower reliability for the North County	If SJWC was the sole water purveyor, we would intend to install a pipe connecting our diverse system to Coyote Valley for redundancy. This would equalize the impact throughout North County.

WATER SUPPLY AVAILABILITY OPTIONS SUMMARY
From Santa Clara Valley Water District's
"Water Supply Availability Analysis for the Coyote Valley Specific Plan"

Option	Title	Summary	Advantages	Disadvantages	SJWC Comments
4	Additional groundwater pumping from additional recharge	Install percolation ponds for recharge in the vicinity of the District's Cross Valley Pipeline for possible raw water recharge from the federal Central Valley Project (CVP). In addition, piping could be installed to allow recharge from advanced treated recycled water.	Diverts only 6,000 ac-ft/yr of 127,700 ac-ft/yr from CVP – this provides up to 5,000 ac-ft/yr in added groundwater capacity	Not reliable during dry years, reduces reliability of CVP water to North County, high cost for implementing advanced treated recycled water, need additional piping	SJWC would fully support this option to increase groundwater capability. CVP water would be cheaper than treating the water in North County and pumping to Coyote.
5	Treated water deliveries from Santa Teresa Water Treatment Plant	Supply water to Coyote Valley by expanding the Santa Teresa Water Treatment Plant (if needed) and pumping the water to Coyote Valley.	Access varied sources of supply, provides redundancy	Impacts North County supplies, need water pipeline and possible expansion of the water treatment plant	As in Option 3, a SJWC pipeline connected to Coyote Valley would bring a wide variety of District water supply sources to Coyote Valley, primarily from the Santa Teresa plant.
6	Additional water use efficiency measures in the Coyote Valley Specific Plan	Meeting the water needs of Coyote Valley assumes that water use efficiency measures are used to the maximum extent practicable.	Reduces demand from all sources of water, ideal environmental benefits	Requires stricter planning and construction restrictions, relies on conservation by the public	SJWC provides a full range of water conservation services, including free water audits.

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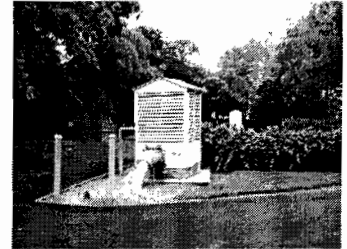
Coyote Valley Water Supply Assessment

In addition to the six options presented by SCVWD, there are other possible sources of water:

1. The possibility exists to install new wells in the Llagas subbasin south of Cochrane Road and pump the water north to the Coyote subbasin. This alternative is less preferred since water in this area is mostly designated for agriculture and Morgan Hill/Gilroy growth. There is also potential for perchlorate and nitrate contamination from the Llagas subbasin groundwater supply.
2. SJWC can evaluate implementing a water conserving rate structure for Coyote Valley, which influences usage above a predetermined amount as development moves forward in order to ensure more aggressive conservation in Coyote Valley. Although this isn't a source of water, it can potentially lower the demand from all water sources.

The eight options presented are open to SJWC, and other options may be considered as they are identified. After evaluating SCVWD's goals for Coyote Valley, SJWC is proposing to do the following:

- Install approximately six new wells at 3 – 6 well sites spaced in cooperation with SCVWD's groundwater model. This would be the primary source of water until full build-out, with about 20 – 100% of the water coming from groundwater depending on the conditions of the basin and whether drought conditions exist. A maximum of 13,000 AF/yr of water will be drawn from the Coyote subbasin assuming 6,000 AF/yr of recharge.
- Provide reclaimed/recycled water to Coyote Valley. SJWC is currently an active retailer of recycled water for the City of San Jose. SJWC can continue in that capacity, while encouraging the use of recycled water. According to the SCVWD, 4,000 AF/yr or more of water can come from recycled water. This water could be used for public and private irrigation and dual plumbing of businesses. Excess water could also be used to supply water to recharge ponds.
- Tap into the Cross Valley Pipeline which provides water from the federal Central Valley Project and from SCVWD's Anderson Reservoir. Preferably, this water would be used to provide raw water supply to recharge ponds planned in South Coyote Valley. Alternatively but less preferable due to cost, in the future SJWC could provide a water treatment plant to treat raw water directly for distribution.
- Water main extension of SJWC's pipe along McKean Road to Bailey Road will be evaluated as development in Coyote Valley progresses. SJWC is perfectly positioned to provide water from SCVWD's Santa Teresa Water Treatment Plant, the closest SCVWD surface water treatment plant to the project. This would provide redundancy of water supply to ensure Coyote Valley will have water during all drought conditions.
- Work with the SCVWD and the City of San Jose on water conservation concepts and standards.



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Coyote Valley Water Supply Assessment

The build-out anticipated supply shown in the table to the right assumes aggressive water conservation. However, if either the conservation goals fall short or if groundwater availability is short, SJWC anticipates meeting the requirement from the diverse sources of SJWC's system.

Table 12: Build-Out Anticipated Supply

Source of Supply	Acre-ft/yr
Groundwater w/Recharge	6,000 – 13,000
Recycled Water	4,000
SCVWD – Santa Teresa Water via SJWC System	4,300 – 11,300 ⁺
Total	21,300

SJWC is in the unique position to work with SCVWD in implementing the SCVWD groundwater management plan to best meet SCVWD's goals and objectives for water supply management with strong planning and engineering, a high level of service, redundancy and diversity of water supply. In addition, SJWC may be willing to negotiate some cost sharing or other financing options for all of these options with developers and other agencies.

Groundwater Analysis – Coyote Valley

According to SCVWD, the Coyote subbasin is an unconfined basin extending from Metcalf Road south to around Cochrane Road, where it joins the Llagas subbasin at a slightly moving groundwater divide. The Coyote subbasin is approximately seven miles long and ranges in width from a half mile at the Coyote Narrows to three miles. The subbasin has a surface area of approximately 15 square miles.

Demand assumptions in Coyote Valley are estimated to be 21,300 AF/yr. According to the "Santa Clara Valley Water District's Water Supply Availability Analysis for the Coyote Valley Specific Plan" the Coyote basin can support 13,000 AF/yr of pumping if an additional 6,000 AF/yr is recharged into the basin. The Coyote subbasin is very shallow and sensitive to contamination because of its proximity to the surface. To ensure no long-term groundwater impacts due to recharge, SCVWD defines fully advanced treated recycled water as an acceptable recharge alternative available to Coyote Valley.

Operational storage capacity of the Coyote subbasin is estimated to be 23,000 – 33,000 acre-feet. Based on demand projections groundwater will be a vital source of supply in Coyote Valley. The 21,300 AF/yr associated with the Coyote Valley development at build-out is assumed to increase linearly between 2006 and 2040.



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Groundwater will ideally comprise 61 percent of the total water supply in 2040. The table below shows groundwater pumping projections and groundwater as a percentage of total supply until 2040 for non-drought years in Coyote Valley. During a drought, recycled water and other SJWC sources would provide full redundancy. SJWC assumes recycled water will be available in 2006 and will increase linearly until build-out in 2040.

Table 13: Amount of Groundwater Projected for Coyote Valley (AF/yr)

Basin Name	2005	2010	2015	2020	2025	2030	2035	2040
Coyote Subbasin	0	2,500	5,000	7,500	10,000	12,500	13,000	13,000
% of Total Water Supply	0.0%	82.2%	82.2%	82.2%	82.2%	82.2%	71.2%	61.0%

Water Supply Vulnerability

Groundwater by itself will not be sufficient to serve Coyote Valley at build-out. Diversity and redundancy in water supply, and the possibility to have emergency water supplies available in the event of disaster is crucial to the sustainability of the proposed development, the environment, and existing agricultural and recreational areas in Coyote Valley. SJWC has identified multiple sources of water for Coyote Valley which would provide a high quality, diverse and redundant source of supply. For added backup, SJWC incorporates diesel fueled generators into its facilities system which will operate wells and pumps in the event of power outages.

SCVWD's 2003 IWRP predicts shortages in water supply, and the frequency and magnitude of these shortages will be increased due to this development. Since SCVWD has influence over approximately 90% of SJWC's annual water supply, SJWC will continue to work with SCVWD to ensure water supply for Coyote Valley is reliable, while the impact to the existing Santa Clara Valley subbasin is minimal.

SCVWD recommends in their 2003 IWRP that water supply sources be maintained at 95% reliability during significant water shortages that occur during multiyear droughts. To accomplish this, SJWC can use less groundwater in certain areas or zones to achieve the overall balance which best meets the SCVWD's and SJWC's operational goals.

Transfer and Exchange Opportunities

SJWC's distribution system has interties with the following retailers in the San Jose area: City of Santa Clara, City of San Jose Municipal Water, Great Oaks Water and the SCVWD West Pipeline in Cupertino. The connection to the SCVWD West Pipeline allows SJWC to provide water to the Cupertino leased system that SJWC operates. SJWC currently has no plans to use these interties for normal system operation as they are exclusively used for potential emergency sources.

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Supply Reliability

SJWC applied the base years SCVWD used for the average water year, single-dry water year and multiple-dry water years in the 2005 UWMP. The water years used by SJWC are listed in the table below.

Table 14: Basis of Water Year Data

Water Year Type	Base Year(s)
Average Water Year	1985
Single-Dry Water Year	1977
Multiple-Dry Water Years	1987-1991

Documented in the following table is the quantity of water SJWC received from each source of water during the average water year, single-dry water year and multiple-dry water years. SCVWD added the 100 MGD Santa Teresa Water Treatment Plant in 1989 to increase capacity and redundancy in their source of supply.

Table 15: Supply Allocation (AF/yr)

	Average Water Year	Single-Dry Water Year	Multiple-Dry Water Years				
Water Source	Year (1985)	Year (1977)	Year 1 (1987)	Year 2 (1988)	Year 3 (1989)	Year 4 (1990)	Year 5 (1991)
SCVWD Treated	47,061	36,220	57,879	65,935	81,405	64,143	63,093
Local Surface	5,410	1,364	4,576	3,548	6,500	3,719	6,435
Groundwater	94,853	72,962	92,257	81,964	37,020	55,363	42,513
Totals	147,325	110,545	154,712	151,447	124,925	123,225	112,042

The following table takes the supply received in each of the drought years and divides it by the supply received in the average water year to generate a percentage of normal supply SJWC may expect to see during a future drought period.

Table 16: Supply Allocation as a Percentage of Normal Water Year (1985)

	Single-Dry Water Year	Multiple-Dry Water Years				
Water Source % of Normal	Year (1977)	Year 1 (1987)	Year 2 (1988)	Year 3 (1989)	Year 4 (1990)	Year 5 (1991)
SCVWD Treated	77.0%	123.0%	140.1%	173.0%	136.3%	134.1%
Local Surface	25.2%	84.6%	65.6%	120.1%	68.7%	118.9%
Groundwater	76.9%	97.3%	86.4%	39.0%	58.4%	44.8%
Totals	75.0%	105.0%	102.8%	84.8%	83.6%	76.1%

Besides a drought, other factors which could cause SJWC's sources of supply to become inconsistent are summarized below.

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Coyote Valley Water Supply Assessment

Table 17: Causes of Supply Inconsistency

Supply	Legal	Environmental	Water Quality	Climatic	Mechanical
Local Surface			x	x	x
Ground Water		x	x	x	x
SCVWD Treated Water	x	x	x	x	x

All sources of water require some mechanical equipment to bring the water to the public. Mechanical failures may cause water service shutdowns until repairs are made. The quality of the groundwater in the basins, the Santa Cruz Mountains, or the raw water supply to SCVWD's treatment plants could decrease or be contaminated such that existing treatment facilities are not adequate to meet current drinking water standards. Contamination could cause a source of supply to become unusable until further treatment techniques are utilized, or the contamination is no longer a threat to the source of supply. SCVWD contracts with the State of California to receive raw water from the California Central Valley through the State Water Project (SWP). Water supplied through this aqueduct (which originates from the Sacramento-San Joaquin Delta) may be limited because of subsidence problems which are beginning to occur in that area. Subsequently, SCVWD has contracted with the Federal Central Valley Project (CVP) to supply raw water from the San Joaquin Valley via the Santa Clara Conduit. The reliance of water from inland sources through the SWP or the CVP is very critical; the loss of any or all of these sources due to pipe failure, earthquake, or human intervention can have an extreme effect on SJWC's water supply. Given the above factors which could result in an inconsistent water supply, it is crucial that SJWC have sufficient backup wells and pumping capacity to supply customers for as long as several months solely from groundwater sources.



SCVWD is responsible for managing water resources in Santa Clara County, including the long-range planning for additional supplies and/or conservation needed to meet future water demands. SJWC and other retailers work closely with SCVWD to coordinate the purchase of treated imported water and the extraction of groundwater from retailer-owned wells. This activity is important to the operation of the countywide water supply and distribution system and the retailers are dependent on SCVWD's long-range resource planning.

In determining the long-range availability of water, considerations must also be given to decisions at the state or federal level that are out of the SCVWD's control. The SCVWD has contracts for water deliveries with both the SWP and the federal CVP. Due to flow restrictions for the protection of water quality and the habitat of fish and wildlife in the Delta, water deliveries may be reduced from previous levels. During critical dry periods the SCVWD can expect additional reductions in water deliveries. Long-range planning success depends on the SCVWD's ability to obtain adequate imported water supplies and on proper management of the local groundwater basin.

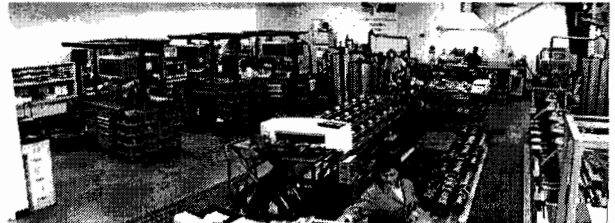
Water Demand Management Measures

SJWC provides a full range of water conservation services to both residential and commercial customers, the cornerstone of which is our water audit program. In 2005, SJWC's three Water Conservation Inspectors performed over 1,900 water audits. These water audits consist of a SJWC Water Conservation Inspector doing a thorough investigation of the customer's home or business. The inspector carefully inspects the property for leaks and measures the flow rates of all showers, faucets and toilets. The program targets the top 10% of users in each water use sector. Actual water savings as a result of audits performed in 2005 were estimated to be 310 AF/yr. The goals of this program are to identify the source of the customer's water consumption and recommend more efficient water use methods.

SJWC participates in SCVWD's residential clothes washer rebate program in which customers can receive a \$100 - \$150 rebate for qualifying high efficiency washing machines. SJWC informs the customers of this program through the water audits, at retail outlets where washing machines are sold, and through the SJWC website. SJWC also augments its water audit program by providing customers with free low flow showerheads and faucet aerators which are purchased by SCVWD. These fixtures are distributed during water audits, at times during customer visits to SJWC's main office, and during customer participation in public events.

SJWC is the wholesale retailer for the South Bay Water Recycling Program which takes treated wastewater that would normally be discharged into the San Francisco Bay and pipes it back for non-potable uses such as landscape irrigation.

SJWC has a regular schedule of meter calibration and replacement for all meter types in the distribution system. Larger meters are routinely replaced, repaired and tested based on consumption. Meters 1" and smaller are replaced according to the manufacturer's recommended service life. If a customer believes the water meter is faulty, the meter is removed and tested. The customer is invited to witness the test in accordance with California Public Utility Commission (CPUC) regulations.



SJWC provides and participates in numerous consumer education programs. SJWC has encouraged water conservation to its customers in many ways, including: providing water-efficient plumbing



fixture brochures in conjunction with the City of San Jose, providing a landscape irrigation brochure encouraging efficient outdoor water use, and providing annual water quality reports as a bill insert. SJWC also attempts to reach the community in ways that go beyond the development and distribution of written materials. These methods include speaking to service groups, civil clubs, school groups and participating in annual Water Awareness Month activities. SJWC also participates in school education programs including: San Jose Unified School SCVWD's "Adopt a School" program, classroom presentations, and funding for annual science-related field trips.

SAN JOSE WATER COMPANY
Coyote Valley Water Supply Assessment

Supply and Demand Comparison

SJWC's projected supply and demand for normal water years is listed in the following table. The table shows that SJWC's projected supply is sufficient to supply the projected demand for the Coyote Valley development.

Table 18: Supply and Demand Comparison – W/out Additional Conservation (AF/yr)

	2005	2010	2015	2020	2025	2030	2035	2040
Supply	152,940	167,253	182,292	198,724	213,418	228,318	245,052	262,640
Demand (Including Coyote Valley)	152,940	167,253	182,292	198,724	213,418	228,318	245,052	262,640
Difference (Including Coyote Valley)	0	0	0	0	0	0	0	0

Listed in the following tables are comparisons between the 2005 and 2040 projected supply and demand during normal, single-dry and multiple-dry year droughts. These numbers were generated by multiplying the current and 2040 demands (including conservation) by the percentages of normal water supply SJWC experienced during the 1977 single year and the 1987-1992 multi-year droughts. During these drought times, SJWC may experience shortages of supply and will enact the current Water Shortage Contingency Plan (Appendix G). Although there appears to be shortages during droughts, in reality voluntary and involuntary water conservation greatly reduces demand. SJWC foresees meeting all demands in the future.

Table 19: Current supply and demand for normal, single-dry and multiple-dry years (AF/yr)

2005 Supply & Demand	Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
Supply Total	152,940	114,705	160,587	157,222	129,693	127,858	116,387
Demand Total	152,940	114,705	160,587	157,222	129,693	127,858	116,387
Difference	0	0	0	0	0	0	0

Table 20:

35-year projected supply and demand for normal, single-dry and multiple-dry years (AF/yr)

2040 Supply & Demand	Normal Water Year	Single-Dry Water Year	Multiple-Dry Water Years				
			Year 1	Year 2	Year 3	Year 4	Year 5
Supply Total	222,134	166,601	233,241	228,354	188,370	185,704	169,044
Demand Total	222,134	166,601	233,241	228,354	188,370	185,704	169,044
Difference	0	0	0	0	0	0	0

SAN JOSE WATER COMPANY

Coyote Valley Water Supply Assessment

Summary

San Jose Water Company is the largest water retailer in Santa Clara County, and has the widest range of available water sources. SJWC has a long and successful relationship working with the development community in Santa Clara County and SCVWD, and is fully capable of implementing SCVWD's objectives. If SJWC were the sole water retailer, all of the main SCVWD objectives would be met:

- ◆ Ensuring supply reliability – SJWC could provide a link to its large and diverse system, providing complete redundancy of the requirement of Coyote subbasin groundwater.
- ◆ Ensuring supply diversity – SJWC would use all available diverse water supplies in Coyote Valley (groundwater, recycled water, and surface water) and provide redundancy and emergency water from a diverse water supply network, the SJWC system.
- ◆ Ensuring water quality – SJWC is very experienced in ensuring water quality for the approximately 1,000,000 population in our service area. For Coyote Valley, SJWC would work with SCVWD to maximize the quality of groundwater, and install additional treatment where needed for potential problems such as nitrate or iron/manganese.
- ◆ Minimizing cost impacts – SJWC always strives to implement the lowest cost effective plan. SJWC may be willing to discuss cost sharing and financing as well.
- ◆ Maximizing adaptability to changing conditions – redundancy of supply will be very important in the Coyote Valley, especially during drought conditions. SJWC is most experienced at dealing with changing conditions.
- ◆ Implementing water conservation concepts and standards – SJWC is already working closely with SCVWD on this and will continue to expand SJWC's involvement.
- ◆ Protecting the environment/flood protection and recreation – SJWC will comply with all local and state regulations, and support water plans of the City of San Jose and SCVWD.

In summary, San Jose Water Company has the experience and resources to best meet all of the water supply objectives for Coyote Valley.



APPENDIX D: GROUNDWATER BASIN INFORMATION

APPENDIX D: SANTA CLARA VALLEY GROUNDWATER BASIN INFORMATION

Potential water sources for Coyote Valley include the Santa Clara Valley Groundwater Basin, which includes the Santa Clara and Coyote Sub-basins. Per the requirements of SB610, this Appendix describes the Santa Clara Valley Groundwater Basin, which a particular focus on the Coyote Sub-basin since it will supply a majority of the water to the Specific Plan. This appendix discusses groundwater management, lithography, discharge and recharge components, historic and current pumping and groundwater levels, storage, and groundwater quality.

Santa Clara Valley Groundwater Basin

Three linearly interconnected groundwater sub-basins make up the Santa Clara Valley Groundwater Basin: the Santa Clara, Coyote, and Llagas Sub-basins (Figure D-1). The Coyote Sub-basin is roughly 7 miles long and 2 miles wide, with a corresponding surface area of about 15 square miles, and contributes groundwater through the Coyote Narrows into the Santa Clara Sub-basin, which covers a surface area of 225 square miles. A groundwater divide at Cochrane Road separates northerly flow toward San Francisco Bay from water in the Llagas Sub-basin which drains to the south toward the Pajaro River and eventually Monterey Bay. (The actual location of the groundwater divide has historically been observed to move as much as one mile to the north or south of the designated boundary at Cochrane Road, due to hydrologic conditions.)



Figure D-1: Santa Clara Valley Groundwater Basin

Coyote Sub-basin

Stream flow in Coyote Creek used to recharge the local groundwater basin can be regulated by Coyote and Anderson reservoirs. Coyote Creek enters the Coyote Valley from the southeast at Anderson Reservoir. The creek crosses US 101 and meanders northward past Coyote Creek Golf Course to the Coyote Narrows. Several percolation ponds, operated by the SCVWD, are located along Coyote Creek to recharge the groundwater sub-basin in San José. Abandoned quarry ponds, which are also used for groundwater recharge, are located along the creek in the southeastern portion of the CVSP area. Toward the northwest end of the valley, discontinuous basin deposits of clay tend to keep ponds, including the Metcalf Percolation Ponds, and other low areas filled with perched groundwater, above the main saturated aquifer. Figure D-2 schematically shows groundwater management techniques within Coyote Valley.

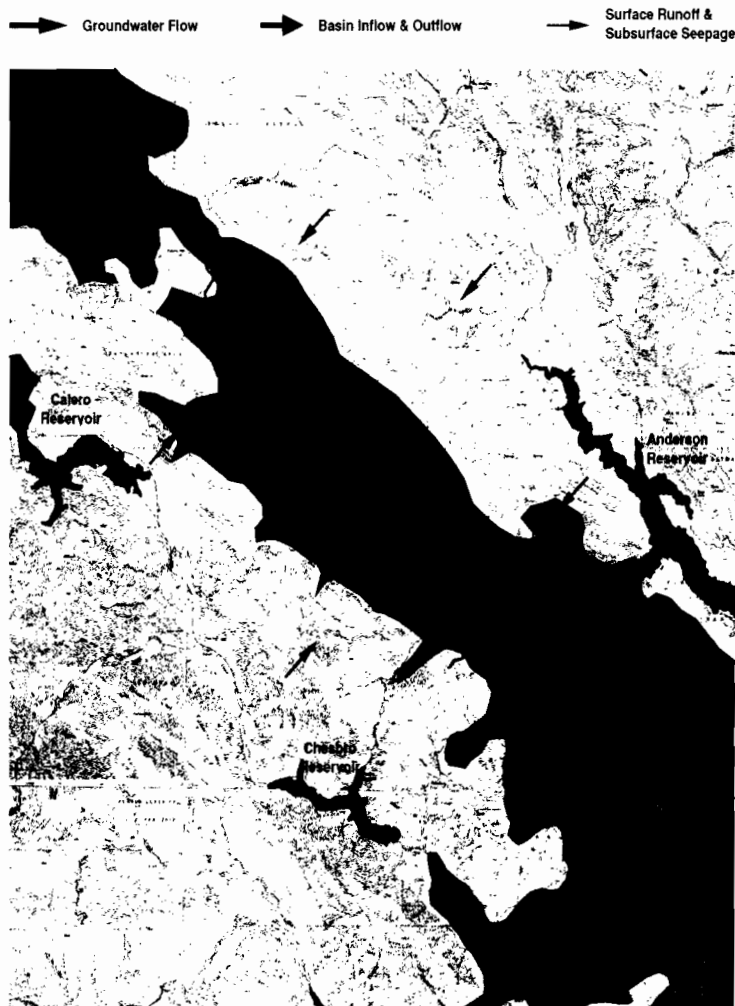


Figure D-2: Groundwater Management in Coyote Sub-basin

The Coyote Canal is located to the east of Coyote Creek and parallels Highway 101. This facility was built to help manage water resources in the valley, and in particular to deliver water around Coyote Creek's recharge area between Highway 101 and the Coyote Creek Golf Course because this recharge historically caused high groundwater levels in Coyote Valley. The Coyote Canal has historically been a tool to manage groundwater in Coyote Valley and prevent the loss of water supplies upstream of the Metcalf Percolation Ponds and the Santa Clara Sub-basin aquifer it recharges.

Several manmade ponds dot the study area, particularly near Coyote Creek where abandoned river gravel quarries remain filled with groundwater all year. Toward the northwest end of the valley, discontinuous basin deposits of clay tend to keep ponds and other low areas filled with perched groundwater, above the main saturated aquifer.

Basin Lithology. Lithography refers to the physical makeup of sediments and rocks, and how their depositional history affects groundwater resources. Figure D-3 shows the Coyote Basin's aerial geology, a transverse cross section, and a longitudinal cross section.

Water-bearing geologic formations in the Santa Clara Valley include rocks from the Pliocene through Holocene periods. The Franciscan Formation (shown in purple) – which outcrops in the Santa Cruz Mountains, the central part of the Diablo Range, near Coyote Narrows, and in the hills east of Coyote Creek – also underlies the Coyote Basin at depths of at least 160 feet. It is composed mostly of folded, faulted, and sheared marine sediments from the Jura-Cretaceous period, and has been estimated to be about 50,000 feet thick. The Franciscan Formation is not considered a significant source of groundwater, although DWR Bulletin 118-1 notes that it provided water to 25 wells in the South Santa Clara Valley (including the Coyote and Llagas Sub-basins) as of 1981.

The Santa Clara Formation (shown in green) is exposed in the hills to east side of Coyote Valley, and overlies the Franciscan Formation in much of the Coyote basin. It is a major water-bearing formation, possibly tapped by deeper wells in the Coyote Basin. It is composed of fairly well consolidated silt, clay, and sand with some zones of gravel, and may be inter-bedded with volcanic rocks in places. It is estimated to have a maximum thickness of around 1,800 feet. Available reports do not establish a depth to the surface for the upper surface, due to driller's log records not differentiating between it and overlying alluvial sediments. Valley fill materials (shown in tans and grey) include alluvial fans, older and younger alluvium, basin deposits, and stream deposits. These materials make up the uppermost and principal water-bearing strata in the Coyote sub-basin. Overall, the valley fill in Coyote is comprised of generally unconfined sand and gravel, with some discontinuous lenticular silt and clay deposits.

Alluvial fans that overly the Franciscan and Santa Clara formations are estimated to be between 3 feet and 25 feet thick. They are a heterogeneous mix of unconsolidated to semi-consolidated clay, silt, and sand, with some gravel lenses. Older and younger alluvium overly alluvial fans and older deposits, and are estimated at up to 125 and 100 feet thick respectively. They are composed of unconsolidated silt, sand, and clay deposited as ancient flood plain, with sandy gravel deposits occurring in areas of ancient stream channels (these are shown with grey coloration on the cross sections in Figure D-3). Older alluvium is distinguished from younger alluvium by its dense clayey subsoil which retards vertical movement of water and has low recharge potential. Groundwater is generally unconfined in the younger alluvium and ranges from unconfined to locally confined in the older alluvium. Within the older and younger

alluvium deposits in the Coyote Sub-basin are two networks of interconnected buried stream channels left behind by an ancient Coyote Creek. The older network is found at elevations below about zero feet, and follows the path of a southward flowing Coyote Creek; while the upper system, found at elevations above about zero feet, follows a later, northward flowing Coyote Creek.

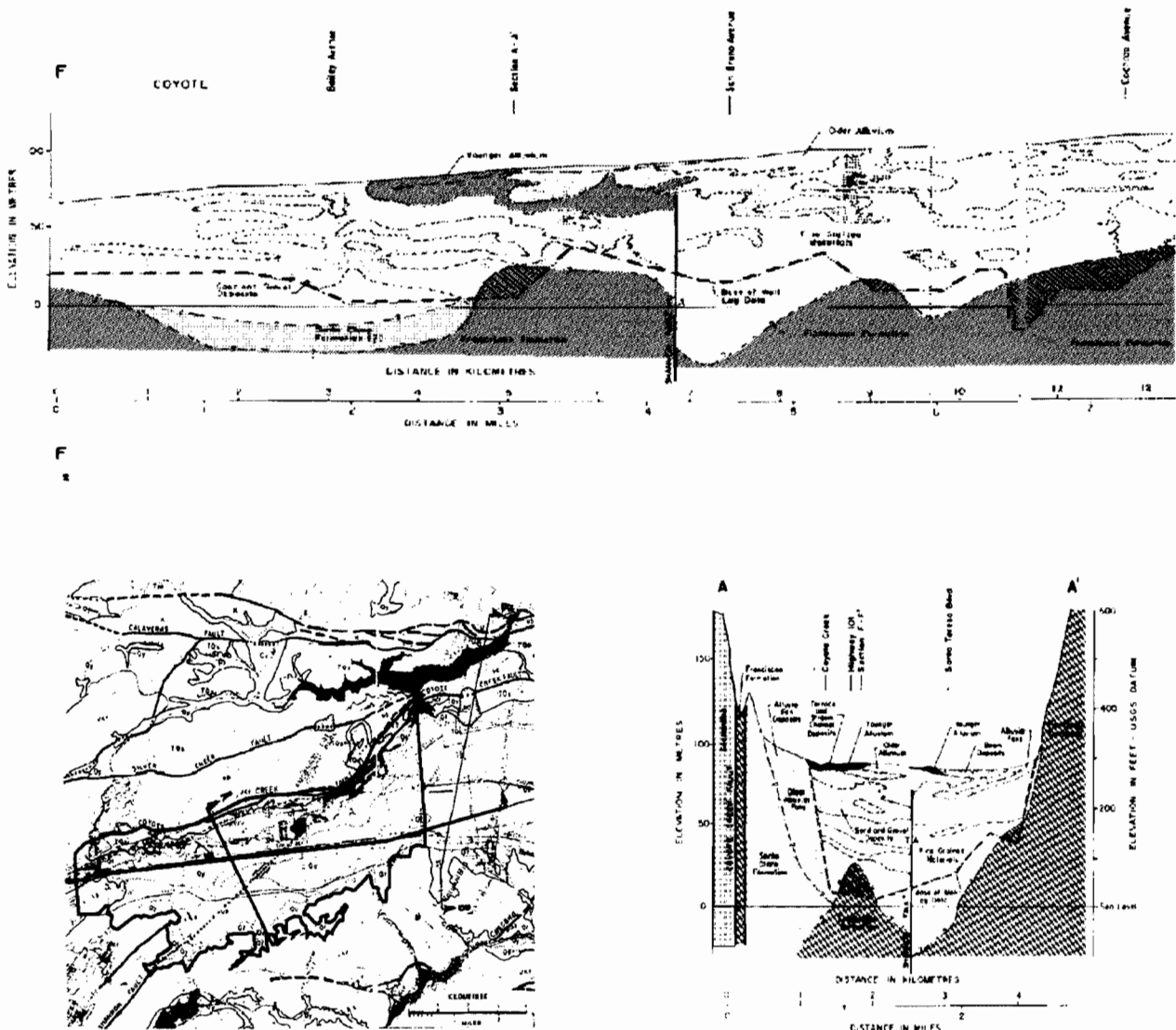


Figure D-3: Aerial and Cross Sectional Geology of Coyote Valley

Basin deposits are fine-grained unconsolidated silty and sandy clays, with areas of plastic and organic clays. Basin deposits are found in low-lying areas at thicknesses up to 100 feet in the Santa Clara Valley, and are specifically found in North Coyote. They have low infiltration rates, are prone to ponding during the rainy season, and can act as a confining layer to underlying deposits. Stream deposits are unconsolidated sand, gravel, and cobbles, with little or no silt and clay. They are up to 50 feet thick and occur in and around stream channels in the Coyote Basin. They have a high infiltration rate and facilitate the recharge of deeper water-bearing layers.

Essentially the valley floor is made up largely of permeable materials that allow for the free recharge of surface water (resulting from direct runoff during storms) into the deeper water bearing layers. Permeability throughout Coyote Valley is not necessarily uniform, and certain locations provide more natural groundwater recharge than others (the bed of Coyote Creek being a prime example). The general trend of soil permeability is shown in Figure D-4. Pink soil groups including shallow loess and sandy loam; green soil groups include clay loams, shallow sandy loam, and soil high in clay content; and blue soil groups include soils that swell when wet, heavy plastic clays and other soils affording little groundwater infiltration.

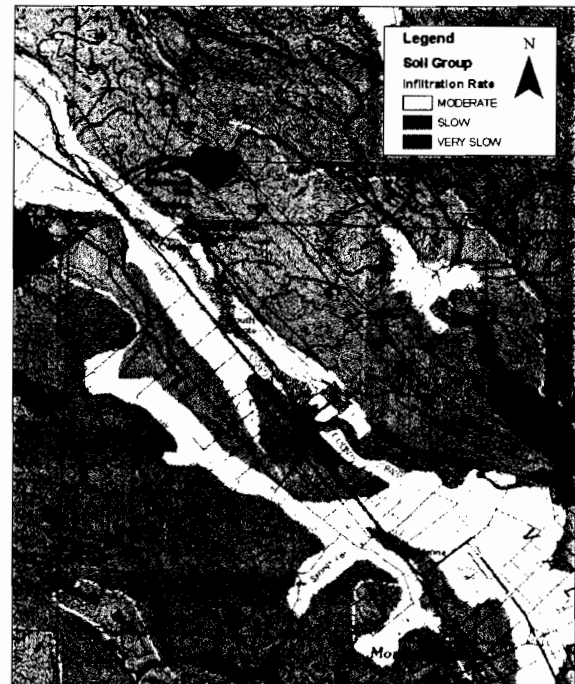


Figure D-4: Relative Surface Infiltration

Due to a lack of verifiable data for the area, the depth to bedrock of the basin is unconfirmed. DWR Water Bulletin 118-1 presents elevation contours of the lower surface of valley fill materials based on well driller's logs. These contours show the base of the alluvial deposits to range from elevation 0 to 200 feet; placing the Valley Fill depth at a maximum of about 390 feet.

Groundwater Basin Balance. Existing and historic conditions in the Coyote Valley Sub-basin are best examined through the concept of basin balance. A basin is said to be in balance when the volume of water entering a basin is equal to the volume of water leaving the basin, over a specified period of time (usually a year). This concept is also often referred to as a "groundwater budget". Should either the input or output of water from a basin fall out of balance, groundwater levels within that basin will rise or fall in response. Groundwater basins where the output of

water exceeds the input of water over a number of years are said to be “mined”. In 2000 CH2M-Hill prepared a Coyote Valley groundwater budget for the Metcalf Energy Center, representing average conditions from 1988 to 1999 (Figure D-5). This time period experienced wet, average and dry year conditions, and because the time frame experienced one half of a critical dry period, provides a relatively conservative water budget, which indicates an essentially balanced basin, with recent inflows exceeding recent discharge by about two percent.

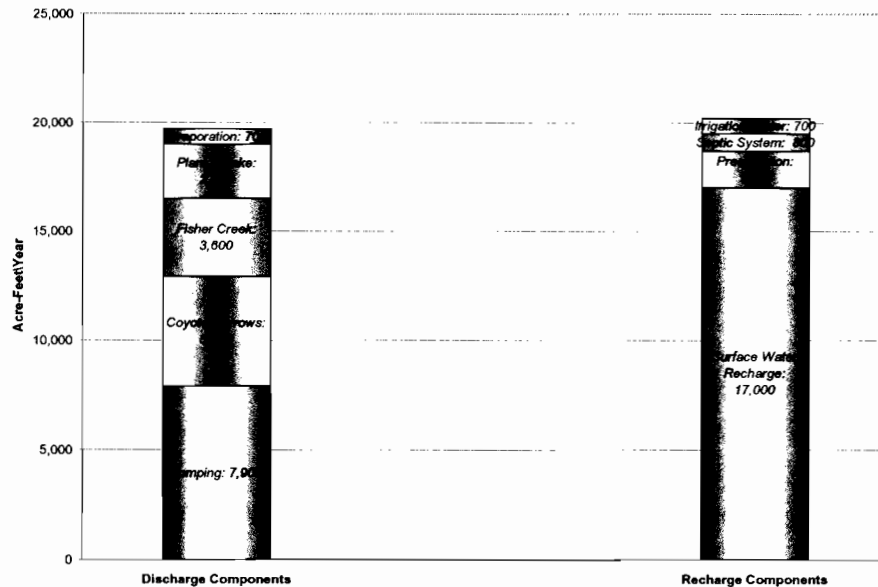


Figure D-5: Coyote Valley Groundwater Budget
(CH2M-Hill, 2000)

Discharge Components. Discharge components refer to water uses or losses within the groundwater basin. They include in order of magnitude: direct groundwater extractions (i.e. pumping); subsurface outflow through the Coyote Narrows; discharges to surface water (e.g. Fisher Creek); direct consumption by plants, and the direct evaporation of surface water.

The District has records for 619 production wells in Coyote Valley. Although many of the wells in Coyote Valley are not metered, the majority of groundwater used comes from metered wells. Where meter data is not available, groundwater production has been estimated using efficiency or flow testing, power use, and/or crop factors. Table D-1 summarizes District-reported pumping in Coyote Valley from 1989 to 2004. (Ref. Roger Pierno, SCVWD Groundwater Management Unit; and SCVWD *Urban Water Management Plan 2005*.)

Table D-1: Historic Groundwater Pumping in Coyote Valley

Year	Pumping (acre-feet)
1989	6,011
1990	6,609
1991	6,433
1992	6,152
1993	6,104
1994	6,537
1995	6,693
1996	6,592
1997	8,004
1998	6,918
1999	8,387
2000	7,894
2001	6,892
2002	6,721
2003	6,796
2004	7,290

Subsurface outflow is the discharge through Coyote Narrows and while difficult to quantify (since the discharge cannot be directly measured), is very important to the health of the Santa Clara Sub-basin to the north and the water supply situation in San José. Average annual flow through the Narrows has been estimated by others in the past:

6,200 acre-feet per year for 1983-84 (Harding Lawson Associates, 1985)

4,400 acre-feet per year for 1984-85 (SCVWD, 1989)

5,000 acre-feet per year based on hydrogeologic conditions (CH2M-Hill, 1992)

The natural condition of Coyote Creek is to lose water to the groundwater basin upstream of the Coyote Creek Golf Course since the natural gradient of the basin is away from Coyote Creek and toward Fisher Creek to the west and north. The underground basin becomes generally thinner and shallower near the Narrows, causing groundwater to influence surface water conditions. CH2M-Hill estimates that the base flow component of Fisher Creek is 300 acre-feet per month, or 3,600 acre-feet per year. This represents the flow of water in Fisher Creek not attributed to direct rainfall runoff. There does not appear to be a strong component of groundwater discharge to Coyote Creek, and CH2M-Hill neglected this in their groundwater budget.

Plants in wetland and riparian areas within Coyote Valley can directly use available soil moisture to build tissue. This type of plant is referred to as a phreatophyte, and CH2M-Hill assumed a consumption of 4 acre-feet per acre of riparian or wetland habitat to estimate a total direct consumption of 1,900 acre-feet per year for native plants.

The District is concerned with the maintenance of natural creek flows and wetlands in the face of changing water demand within Coyote Valley, and their proposed groundwater management scenarios reflect this concern.

Crops and other vegetation within shallow groundwater areas (especially Laguna Seca) also directly consume groundwater from the basin. Assuming the rate of use for these plants mimics water demand for irrigated grass pasture within interior valleys (45 inches per year); CH2M-Hill estimated an annual loss of 600 acre-feet for this discharge category.

Open water surfaces in Coyote Creek, Fisher Creek, various ponds, golf course lakes, and old gravel pits have been estimated to lose 740 acre-feet of water every year.

Recharge Components. Recharge components refer to water gains within the groundwater basin. They include in order of magnitude: direct surface water recharge (natural and artificial); the deep percolation of precipitation; septic system discharges to groundwater; and the deep percolation of irrigation return water.

Unmanaged natural sources of recharge to the Coyote Sub-basin include rainfall, pipeline leakage, net irrigation return flows to the basin, underground seepage from the surrounding hills, and infiltration of flow in streams which drain areas of the Santa Cruz Mountains to the West¹. Of these, deep percolation of rainfall accounts for most of the natural inflow to Coyote². Because irrigation returns and pipeline leakage are difficult to measure, the District estimates total natural recharge to the Coyote Sub-basin by tracking annual groundwater pumping and the change in storage estimated from groundwater levels. Table D-2 presents estimates of natural recharge for four hydrologic scenarios used in groundwater supply planning.

¹ DWR Bulletin 118-1

² SCVWD Groundwater Conditions 2001, p. 8

Table D-2: Estimated Natural Groundwater Recharge

Hydrologic Scenario	Estimated Natural Recharge (ac-ft/year)
Wet Year	4,000
Long Term Average	2,600
Single Dry Year	1,600
Critical Dry Period	2,400

Source: SCVWD Urban Water Management Plan 2005, p 30.

The majority of basin recharge (85 percent) under current conditions is from direct surface water recharge. Coyote Creek and Coyote Canal are the only surface water bodies that can recharge water from outside of the basin limits (artificial recharge is discussed below). Available research indicates that Fisher Creek receives water from the groundwater basin, but does not provide appreciable recharge in return due to its relatively small watershed and the presence of a confining layer (particularly in the north). The open bodies of water (lakes, gravel pits, etc.) that evaporate water from the basin are also available to directly infiltrate rainwater in lesser amounts. (As described earlier, annual evaporation is more than double mean annual precipitation.)

The District also has the ability to facilitate enhanced groundwater recharge to all three of the Santa Clara County groundwater basins through 80 of its 90 miles of stream channels and 71 off-stream ponds. The recharge program consists of both releasing locally stored and imported water into District streams and ponds, and managing and maintaining the streams and ponds to ensure continued recharge. The District actively supplements natural recharge to the Coyote Subbasin with “artificial” recharge operations in Coyote Creek. Like natural recharge, artificial recharge of Coyote occurs through infiltration of streamflow in Coyote Creek.

The District manages the amount of water artificially recharging Coyote by releasing water stored in Anderson Reservoir to maintain streamflow during dry months and low streamflow periods. Artificial recharge volumes for calendar years 1998 to 2004 are presented in Table D-3, noting that there is roughly a 15 percent difference between these figures and the CH2M-Hill estimate for total surface water recharge in their water balance.

Table D-3: Artificial Recharge to Coyote Sub-basin³

Calendar Year	Artificial Recharge (acre-feet)
1998	8,180
1999	9,891
2000	8,042
2001	8,412
2002	11,737
2003	7,200
2004	8,500

Other sources of recharge include rainfall and agricultural irrigation water return. The California Department of Water Resources estimates that a little more than two inches of rainfall over the Coyote Valley floor reaches the groundwater aquifer through deep percolation, providing about 1,700 acre-feet of supply to the basin every year. About ten percent of agricultural irrigation water returns to the aquifer through deep percolation, and about half of all residential water uses from the aquifer return as septic system discharge. Septic discharges are filtered through sandy soils and unconsolidated deposits before reaching the water table, similar to a slow sand filtration system found in a water treatment facility.

Groundwater Levels. Groundwater levels respond to changes in the balance between groundwater recharge and withdrawal, and indicate the relative amount of water stored in an aquifer at a given point in time. The District maintains groundwater elevation data for monitoring wells in the Coyote Sub-basin dating back to 1937. Because most wells were designed as production wells, they are screened at multiple depths, and therefore elevation data represents an average of the conditions in the various water-bearing formations. A monitoring well at Palm Avenue has been selected as representative of groundwater basin trends over the longest period of time. Figure D-6 superimposes groundwater elevations at this monitoring well and a graph of long-term rainfall patterns as measured in San José.

³ Personal communications w/ Roger Pierno, Groundwater Management Unit, SCVWD.

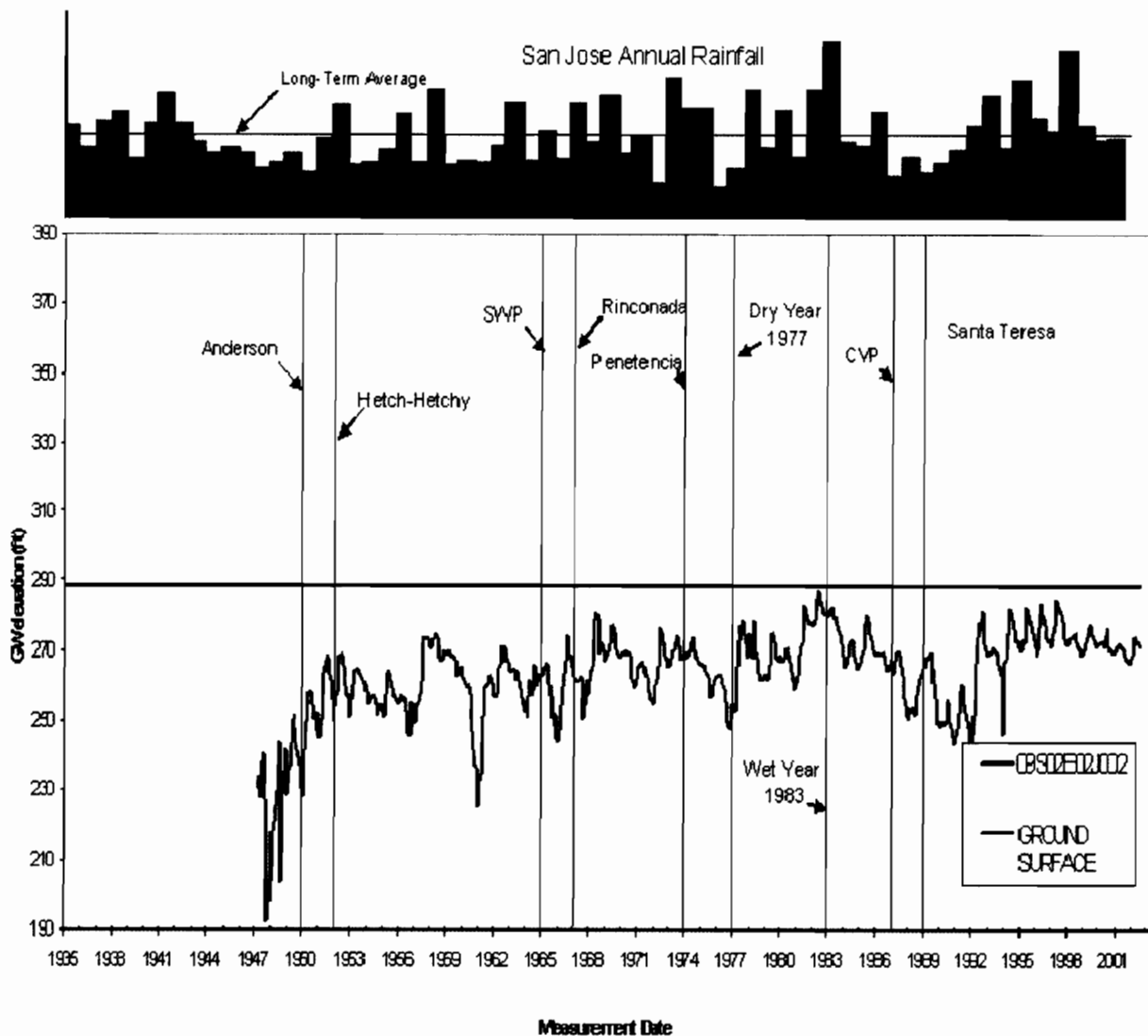


Figure D-6: Historic Groundwater Levels in Coyote Valley

As demonstrated in the groundwater elevation graph, groundwater levels in Coyote Valley are very responsive to the stimuli of rainfall and artificial recharge. By 1937, when the District began to monitor water levels in Coyote Valley, groundwater had been used as a water supply source for more than 80 years. Subsidence of nearly four feet had been recorded in San José; and the Almaden, Calero, Guadalupe, Stevens Creek, Vasona, and Coyote dams had been constructed to store excess winter streamflow for dry-month releases into recharge facilities. Countywide groundwater levels increased from the late 1930s into the beginning of the below-normal precipitation in 1944. Between 1944 and 1950, a combination of low precipitation and use of groundwater for almost all of the county's water needs corresponded to an extreme drop in

groundwater elevations in Coyote. In 1950, construction of Anderson Dam was complete. In 1952 the county began importing Hetch-Hetchy water, however, the county population doubled between 1950 and 1960, and water levels in the northerly Santa Clara Sub-basin declined.

Levels in the Coyote Sub-basin remained relatively stable during this period, however. In the early 1960s the district contracted with the State for an entitlement of 100,000 acre-feet per year through the South Bay aqueduct. In 1967 the District began delivering surface water treated at the new Rinconada Water Treatment Plant (WTP) to north county residents, reducing groundwater extraction and allowing for some basin recovery. Between 1960 and 1970, the county population again doubled. In 1974 Penetencia WTP began delivering treated water to some county residents, reducing some of the demand for groundwater. In 1987 delivery of water from the Central Valley Project began, and in 1989 the Santa Teresa WTP began treating and delivering surface water.

Table D-4 summarizes long-term groundwater data for the Palm Avenue Index Well (Well Number 09S02E02J002 at ground elevation 287 feet, with a total of 623 measurements in the District's records beginning on Jan 14, 1948.)

Table D-4: Groundwater Levels at Palm Avenue Index Well

	Depth to Water (feet)
Average	23.5
Minimum	0.0
Maximum	95.1
Standard Deviation	12.3

Water levels in the Coyote basin respond quickly to changes in circumstances and precipitation. For example, the index wells show a substantial drop in water levels in response to the low precipitation of 1977; however by the fall of 1979, after a period of above-average rainfall, water elevations had recovered to pre-drought levels. Similarly, water levels throughout the basin increased substantially in response to the above average precipitation of 1982-1983; but by the spring of 1985 after a period of below average rainfall, were back to pre-wet conditions.

Figures D-7 and D-8 show, respectively, the long-term average depth to groundwater (as measured in feet from the ground surface) during the fall and spring. Both fall and spring groundwater tables become shallower toward the Narrows. Note also that the long term average spring condition shows groundwater at the surface (depth 0) in Laguna Seca at the north end of Coyote Valley.

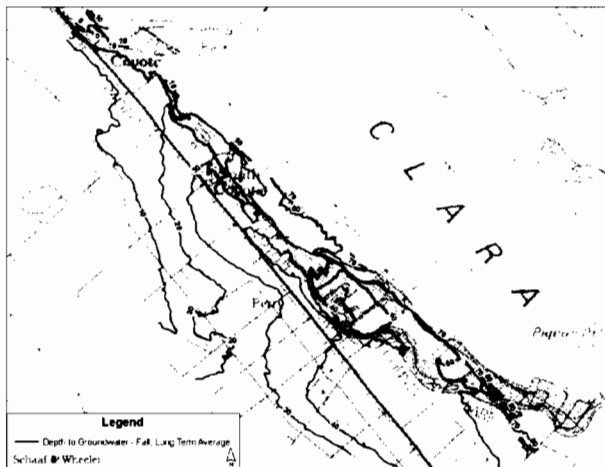


Figure D-7: Avg. Depth to Groundwater in Fall

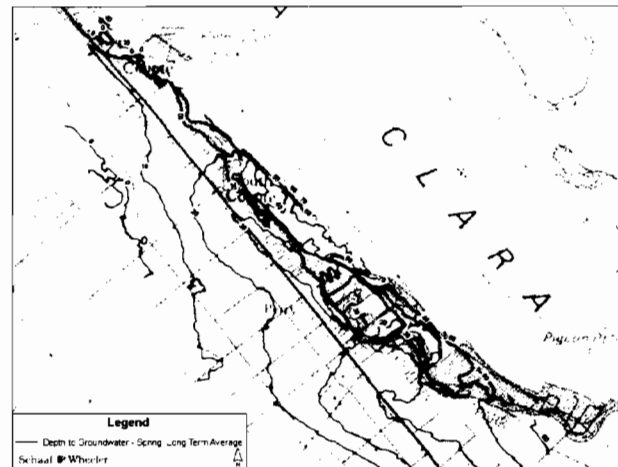


Figure D-8: Avg. Depth to Groundwater in Spring

Groundwater Storage. In April of 2002 the District released a report on a study of the operational storage capacity within the Coyote and Llagas sub-basins. Because the District has not always used a dynamic groundwater model to simulate conditions in the Coyote Basin, estimates of operational storage are made based on the volume between two sets of groundwater elevation surfaces in the basin. The District's analysis is based on groundwater surfaces from the drought of 1976-1977 and the wet conditions of 1982-1983. Two sets of specific yield values were used; one from DWR Bulletin 118, and another from previous estimates made by the District, assuming a constant specific yield is assumed for the entire vertical column under a particular node, ignoring differences in specific yield attributable to the heterogeneity of aquifer materials.

Using the two sets of specific yield values, the District estimates operational storage capacity in the Coyote Sub-basin to be between 23,000 and 33,000 acre-feet. Thus, if water is not recharged to the basin through rainfall, runoff and/or reservoir releases, the basin would run dry in one or two years with current average discharges.

Groundwater Quality. Protecting groundwater within the Coyote Valley Sub-basin (and hence subsurface flows to the north) from contamination and the threat of contamination is an important part of continuing groundwater management responsibilities for the District and City of San Jose. Overall groundwater quality is good in Coyote Valley, with levels of most contaminants monitored falling below maximum level standards for the various beneficial uses of groundwater as defined by the Regional Water Quality Control Board (Table D-5).

Nitrate is a problem to some extent in the Coyote Valley Sub-basin, and more of a problem within the Llagas Sub-basin to the south, where concentrations above the maximum contaminant level (MCL) of 45 mg/l (or parts per million) have been found in many private wells (Figure D-9). In response the District implemented a nitrate management program to monitor, track and manage nitrate contamination. Studies in 1992 and 1997 found that nitrate concentrations in the Llagas Sub-basin are generally increasing over time while concentrations in Coyote Valley have remained fairly constant.

Major sources of nitrate loading were found to be fertilizer used in agriculture, and animal and human waste generation. Although recently more agricultural land in the South County has been converted to residential use, nitrate concentrations in groundwater may continue to increase and or remain steady due to residual nitrate in the soil from prior use and the slow movement of water from the surface to the water table.

There are no public sewer systems within the Coyote Greenbelt and not all septic leach fields were approved by the County Department of Health Services when they were constructed. Seasonally high groundwater elevations during wet periods may have exacerbated the transmission of nitrate loading from sanitary leaching systems to water bearing formations and eventually to groundwater wells. Poor sanitary seals at individual well casings may also contribute to this problem.

Over half of the 600 private wells tested in the Llagas and Coyote Valley Sub-basins in 1997 exceeded the federal safe drinking water standard for nitrate, although all public supply water wells meet drinking water standards.⁴

⁴ SCVWD Groundwater Management Plan 2001, p 41

Table D-5: Water Quality Data for Coyote Valley

Constituent	Coyote Sub-basin	Drinking Water Standard ⁵	Agricultural Objective ⁶
Aluminum (ug/l)	<50	1000	20000
Arsenic (ug/l)	<2	50	500
Barium (ug/l)	<126	1000	-
Beryllium (ug/l)	<1	4	500
Boron (ug/l)	<132	-	200
Bromide (ug/l)	.09 - .16	-	-
Cadmium (ug/l)	<1	5	500
Calcium (mg/l)	28-56	-	-
Chloride (mg/l)	27-35	500	355
Chromium (ug/l)	<12	50	1000
Copper (ug/l)	<50	1000	-
Fluoride (mg/l)	.14-.21	1.8	15
Hardness (mg/l)	205-330	-	-
Iron ⁷ (ug/l)	<5	300	20000
Lead (ug/l)	<5	50	10000
Magnesium (ug/l)	24-60	-	-
Manganese (ug/l)	<20	50	10000
Mercury (ug/l)	<1	2	-
Nickel (ug/l)	<10	100	2000
Nitrate (mg/l)	10-47	45	135 ⁸
Selenium (ug/l)	<5	50	20
Silver (ug/l)	<10	100	-
Sodium (mg/l)	22-28	-	-
Specific conductance (uS/cm)	373-680	1600	3000
Sulfate (mg/l)	31-52	500	-
Total Dissolved solids (mg/l)	330-400	1000	10000
Zinc (ug/l)	<50	500	10000

Source: SCVWD Groundwater Conditions 2001 pg 46

⁵ Maximum contaminant Level (MCL) specified in Title 22 of the California Code of Regulations

⁶ Agricultural water quality objective in the 1995 Water Quality Control Plan for the San Francisco Bay Basin, Regional Water Quality Control Board

⁷ Detection limit for iron varied from 5 ug/L to 100 ug/L..

⁸ Nitrate Agricultural Objective: 30mg/L NO₃ +NO@ (as N), approximately equal to 135mg/L

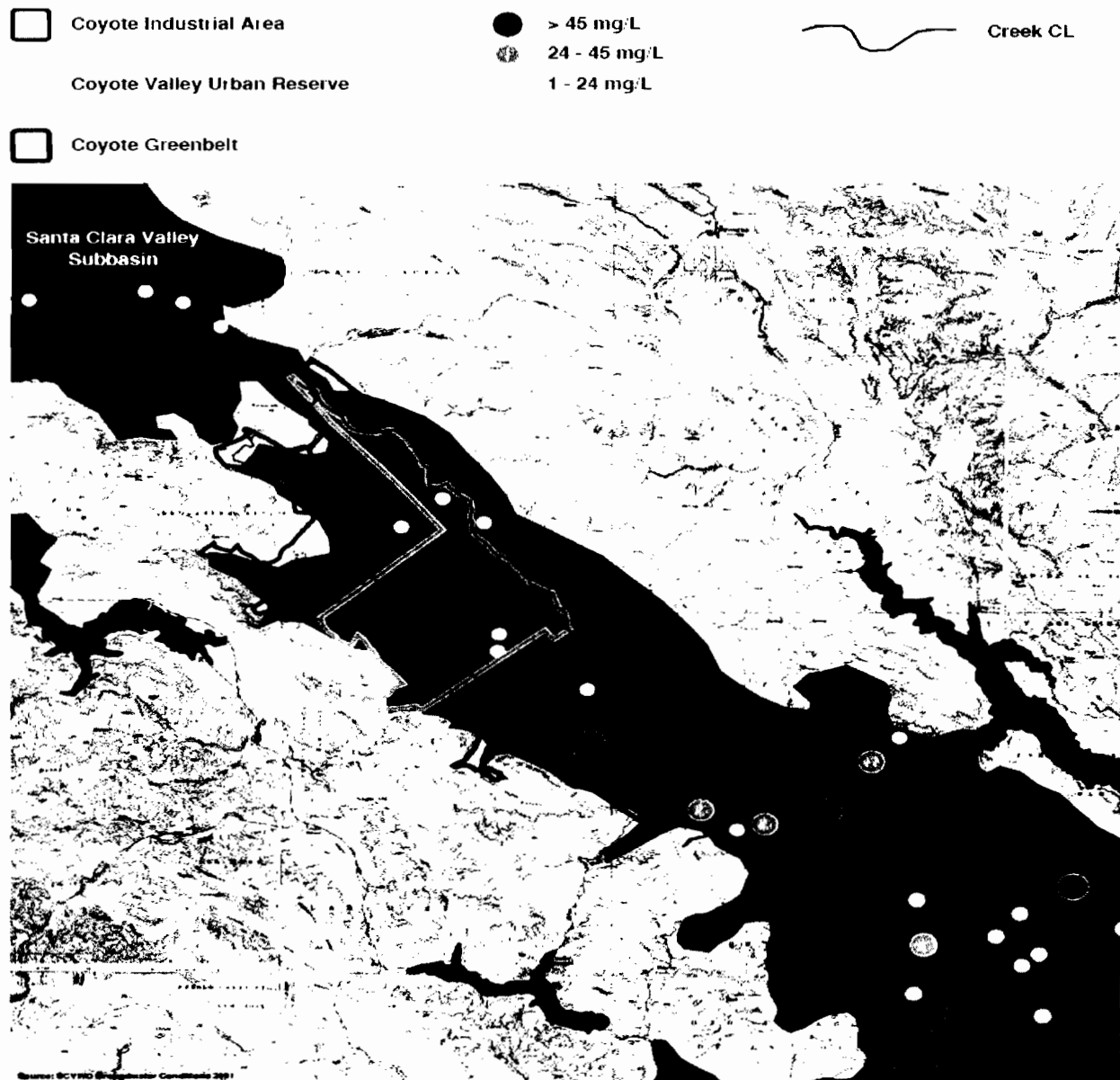


Figure D-9: Nitrate Concentrations (mg/l) in and Near Coyote Valley

Perchlorate, a chemical used in rocket fuel and highway flares, has been detected in the Llagas Subbasin south of Coyote Valley, contaminating wells in southeast Morgan Hill, San Martin and a few in north Gilroy. The contamination has been traced to a highway flare manufacturing plant operated by Olin Corporation from 1956 to 1997 on Tennant Avenue in Morgan Hill. At one time, it was believed that the contaminated groundwater flowed only southeast from the site of initial contamination. (Coyote Valley is about two miles to the northwest.) However, more recent information indicates that the chemical can migrate north in some gradients or sections.⁹ The perchlorate situation is closely monitored by the District and affected cities. Figure D-10 shows contamination as of February 2005.

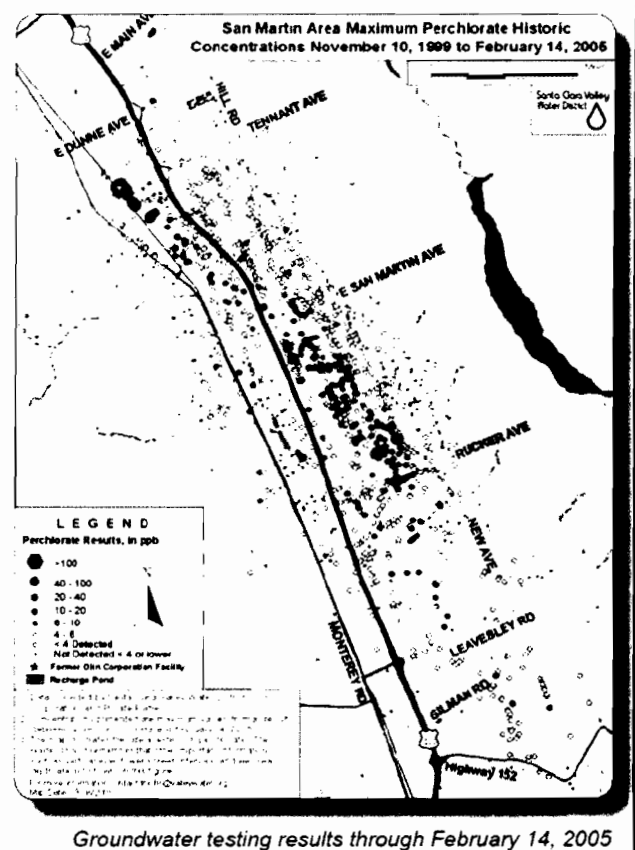


Figure D-10: Perchlorate Concentrations in South Santa Clara County

Future changes in groundwater pumping distribution or extraction rates could affect the migration of contaminants by changing subsurface hydraulic gradients. The creation of local pumping troughs in response to higher demands is one example of a potential adverse impact. The local trough can affect pumping levels at adjacent wells and/or change the migration of contaminant plumes. This reiterates the importance of groundwater management in the Coyote and Llagas Sub-basins.

Detailed Groundwater Modeling. In response to the estimate of limited local basin storage and the desire to preserve groundwater levels and groundwater quality, the District prepared a Water Supply Availability Analysis for the CVSP in April 2005 (see Appendix E) using detailed numeric modeling techniques to assess the ability for future water retailers to extract groundwater from the Coyote Sub-basin to supply projected CVSP demands without adversely impacting other users in that basin, or the neighboring two groundwater basins; either as reflected in long-term groundwater levels or groundwater quality.

⁹ Lawrence Livermore National Laboratory, "California Aquifer Susceptibility: A Contamination Vulnerability Assessment for the Santa Clara and San Mateo County Groundwater Basins," 2002, p. 17

Santa Clara Sub-basin

Groundwater from the Coyote Sub-basin moves north through the Coyote Narrows to recharge the Santa Clara Sub-basin at the Coyote (aka Metcalf) ponds. The Santa Clara Sub-basin underlies a surface area of 225 square miles and is made up of permeable valley fill alluvium. The sub-basin's eastern and western geologic boundaries are formed by the impermeable bedrock of the Diablo Range and Santa Cruz Mountains, respectively. The basin's northern geologic boundary is formed by contact with thick low permeability Bay Mud deposits at San Francisco Bay, and the southern geologic boundary is the artificially defined Coyote Narrows described previously. The northwestern (San Mateo Sub-basin) and northeastern (Niles Cone Sub-basin) boundaries are also somewhat arbitrary and institutional, generally coinciding with Santa Clara County's borders. The sub-basin's bottom boundary is formed by bedrock or consolidated sediments of very low permeability.

Ground surface elevations above the groundwater basin vary from sea level at San Francisco Bay to about 280 feet at the Coyote Narrows, and the basin floor gradually slopes from the southern edges to the northern basin interior. The sub-basin is drained by Penetencia, Berryessa and Coyote Creeks, whose tributaries originate in the Diablo Range; and Permanente, Stevens, and San Tomas Aquino Creek and the Guadalupe River, whose tributaries originate in the Santa Cruz Mountains.

Basin Lithology. The Santa Clara sub-basin is a large depression filled with alluvium that has washed down from the surrounding mountains over the millennia. Alluvium is comprised of unconsolidated sediments such as gravel, sand, clay and silt. Santa Clara's alluvium ranges in thickness from about 200 feet at the Coyote Narrows to over 1,300 feet in the valley interior.

The sub-basin's alluvium is generally divided into Holocene deposits (more recent than 10,000 years old) and Pleistocene deposits (1.8 million to 10,000 years old). The younger deposits consist primarily of clay silt and sand occurring in discontinuous lenses roughly 50 to 75 feet below the ground surface near the center of the sub-basin. Most of the sub-basin's deposits are Pleistocene era, comprised of unconsolidated and inter-fingered lenses of clay, silt, sand and gravel. The Pleistocene deposits lie on top of the Santa Clara Formation.

Figure D-11 shows a cross section of the Santa Clara Sub-basin roughly from the vicinity of Coyote Narrows (actually slightly north of the Narrows) along Coyote Creek to the southeastern end of San Francisco Bay near Milpitas.

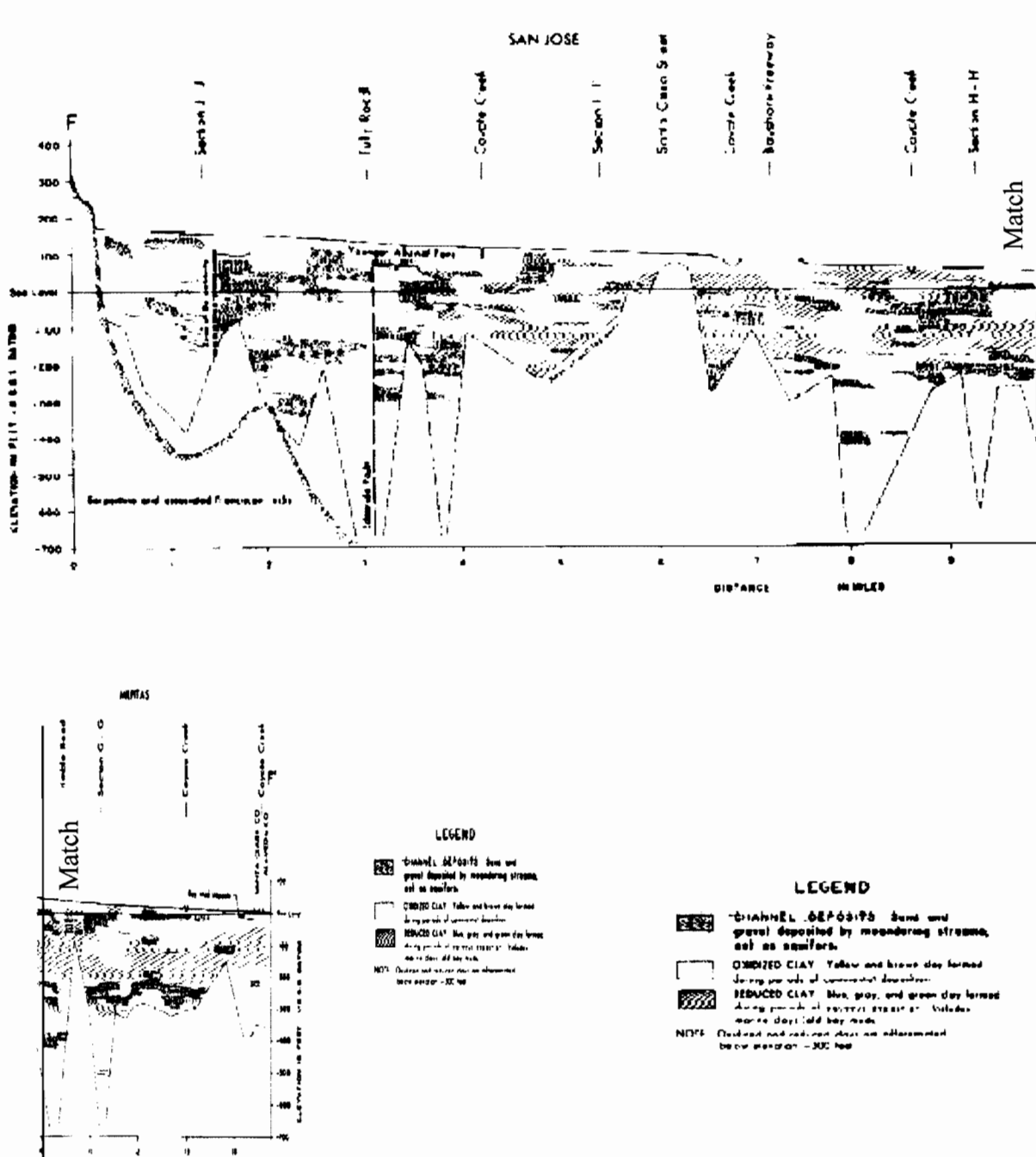


Figure D-11: Santa Clara Sub-basin Lithology (DWR Bulletin 118, 1981)

Hydrogeology. The Santa Clara Sub-basin consists of a series of stacked alluvial aquifers and aquitards that collectively have fairly well defined boundaries in the lateral direction. The bottom boundary is less well-defined due to a lack of depth-to-bedrock information in the center of the sub-basin. Hydrogeologically, the sub-basin is generally divided into confined and unconfined areas and a zone of special concern containing saline water of poor quality (SCVWD, 1989). Aquifer materials on top of a thick clay layer are considered unconfined (water table at atmospheric pressure), while aquifer materials beneath the thick clay layer are confined, or under hydrostatic pressure.

The principal aquifer in the sub-basin is within the younger alluvium found along the inner and tributary valleys (Iwamura, 1995). The unconfined recharge area includes alluvial fans and fluvial (stream) deposits found along the edge of the sub-basin where high lateral and vertical permeabilities allow surface water to infiltrate into the water bearing aquifer. The confined area is located in the northern and central part of the sub-basin and is characterized by upper and lower aquifers divided by discontinuous and laterally extensive low permeability materials such as clays, silty clays, silts and silty sands that restrict the vertical flow of groundwater (SCVWD, 2006). Figure D-12 shows confined and unconfined aquifers, and the zone of special concern.

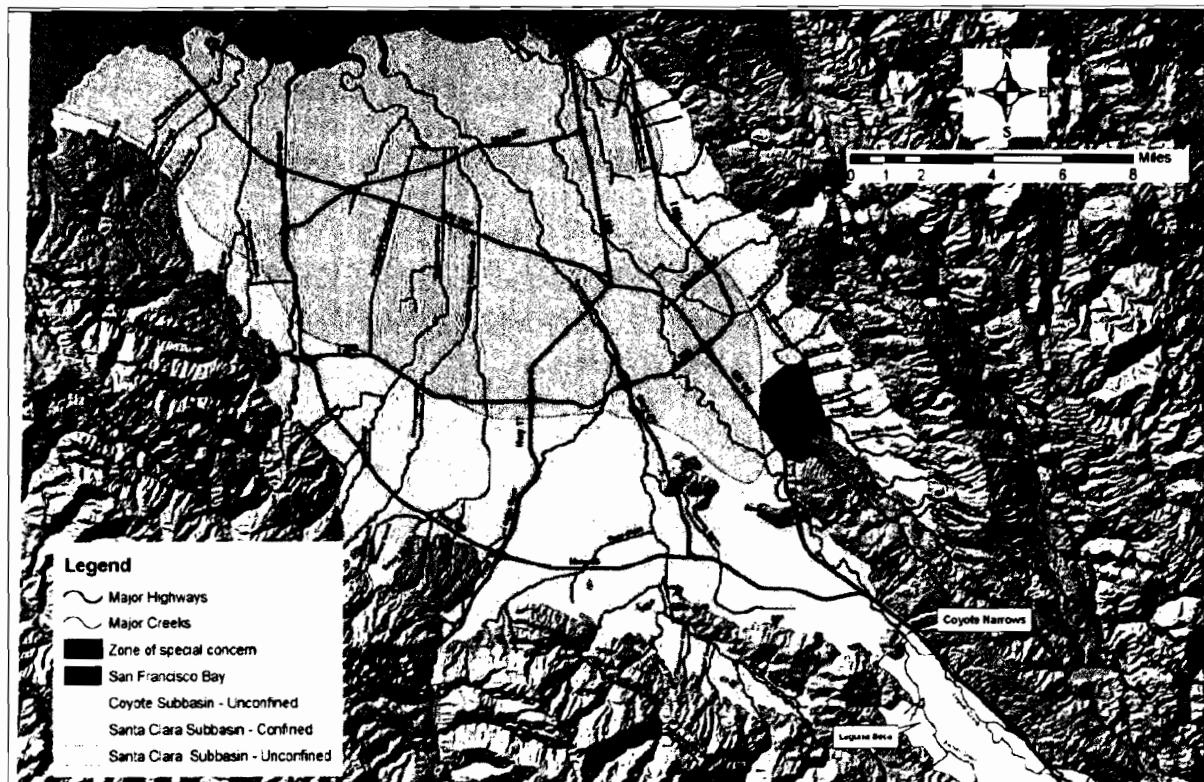


Figure D-12: Santa Clara Groundwater Sub-basin Aquifers (SCVWD, 2006)

Groundwater Management in Santa Clara Sub-basin. Potential water retailers for Coyote Valley all draw groundwater from both confined and unconfined areas within the Santa Clara Sub-basin. Significant pumping of this groundwater basin at the turn of the previous century resulted in widespread land subsidence within the interior of the sub-basin (up to 13 feet cumulatively in San Jose). Aggressive groundwater management by the Santa Clara Valley Water District essentially halted the land subsidence by 1969 (SCVWD, 2006). This was achieved through the importation of surface water (e.g. Central Valley Project), artificial recharge and aquifer system management, which continue to this day. Figure D-13 shows the effects of groundwater management on water levels over the last century.

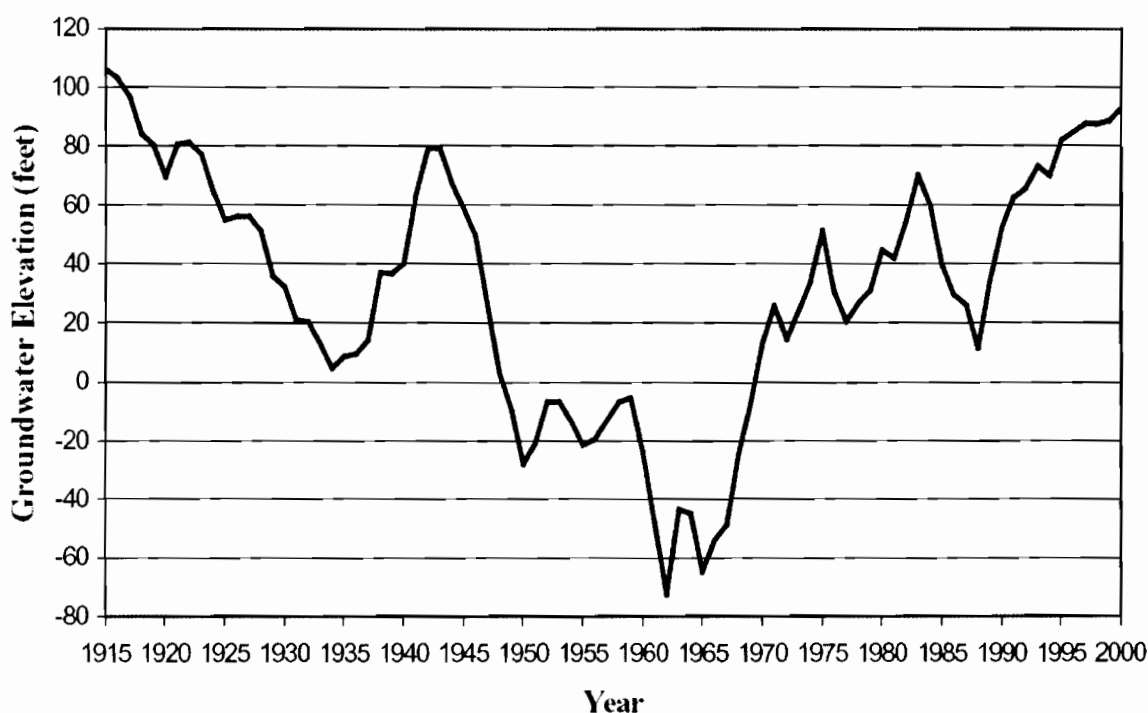


Figure D-13: Impact of Groundwater Management in Santa Clara Valley (SCVWD, 2001)

If groundwater pumping exceeds natural recharge, the District operates on-stream and off-stream artificial groundwater recharge facilities in the unconfined zone to replenish groundwater storage and maintain stable groundwater elevations and piezometric surfaces. Table D-6 lists recent annual groundwater production and artificial recharge within the Santa Clara Sub-basin.

Table D-6: Recent Recorded Groundwater Pumping in Santa Clara Sub-basin¹⁰

Year	Groundwater Pumping (acre-feet)	Artificial Recharge (acre-feet)
2001	115,400	98,700
2002	104,800	71,660
2003	96,600	74,800
2004	105,716	66,700
2005	87,467	70,100

Groundwater Storage. The Santa Clara Valley Water District estimates that the operational storage capacity of the Santa Clara Sub-basin is 350,000 acre-feet.¹¹ Figure D-14 provides a schematic of how this operational storage relates to the District's overall water supply system on a County-wide basis (SCVWD, 2005).

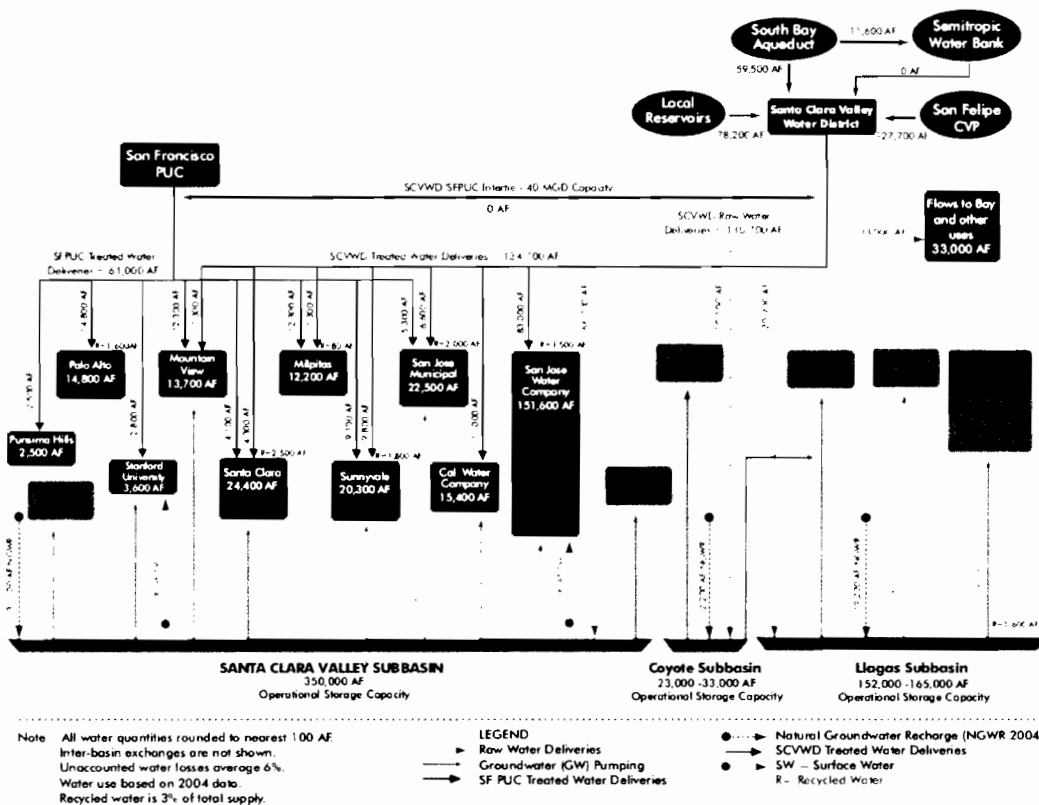


Figure D-14

¹⁰ Information Compiled by Santa Clara Valley Water District

¹¹ SCVWD, 2005 UWMP, pg. 23.

Groundwater Quality. The quality of water extracted from the Santa Clara Sub-basin is generally good and suitable for a variety of domestic, commercial, industrial and agricultural uses. Drinking water standards are met at public supply wells without the need for additional treatment.

The few known water quality problems are limited to high mineral salts within the upper aquifer zone along San Francisco Bay; the lower aquifer zone underlying Palo Alto to the northeast; and the southeastern part of the forebay area of the Santa Clara Sub-basin. Elevated nitrate concentrations are only sporadically observed in the Santa Clara Sub-basin, and the overall nitrate problem is not as pronounced as in the Coyote Valley and Llagas Sub-basins (as previously described for the former).

Although there are a relatively large number of EPA Superfund sites within Santa Clara County, there are few groundwater supply impacts from chemicals at these sites. Volatile organic compounds (VOCs) are intermittently detected at trace concentrations from public supply wells.

Table D-7 provides groundwater quality data for the Santa Clara Sub-basin.

Table D-7: Water Quality Data for Santa Clara Sub-basin

Constituent	Santa Clara Sub-basin		Drinking Water Standard ¹²	Agricultural Objective ¹³
	Principal Aquifer	Upper Aquifer		
Aluminum (ug/l)	6-18	23-97	1000	20000
Arsenic (ug/l)	0.7-1.2	1.2-3.7	50	500
Barium (ug/l)	141-161	60-220	1000	-
Boron (ug/l)	115-150	200-523	-	500
Cadmium (ug/l)	<1	<0.5	5	500
Chloride (mg/l)	40-45	92-117	500	355
Chromium (ug/l)	6-8	0.5-1.8	50	1000
Copper (ug/l)	1.9-4.4	0.3-1	1000	-
Fluoride (mg/l)	0.13-0.16	0.15-0.3	1.8	15
Iron ¹⁴ (ug/l)	10-38	40-160	300	20000
Lead (ug/l)	0.2-1.1	<0.5	50	10000
Manganese (ug/l)	0.15-1.5	120-769	50	10000
Mercury (ug/l)	<1	<0.2	2	-
Nickel (ug/l)	1.8-3.4	4-10	100	2000
Nitrate (mg/l)	15-18	0.002-4	45	135 ¹⁵
Selenium (ug/l)	2.5-3.8	0.4-2	50	20
Silver (ug/l)	<5	<0.5	100	-
Sodium Adsorption Ratio	0.89-1.26	1.23-3.84	-	9
Specific conductance (uS/cm)	596-650	1090-1590	1600	3000
Sulfate (mg/l)	37-41	106-237	500	-
Total Dissolved solids (mg/l)	366-396	733-1210	1000	10000
Zinc (ug/l)	3-8	3-13	500	10000

Source: SCVWD Groundwater Management Plan (2001) pg 15

¹² Maximum contaminant Level (MCL) specified in Title 22 of the California Code of Regulations

¹³ Agricultural water quality objective in the 1995 Water Quality Control Plan for the San Francisco Bay Basin, Regional Water Quality Control Board

¹⁴ Detection limit for iron varied from 5 ug/L to 100 ug/L..

¹⁵ Nitrate Agricultural Objective: 30mg/L NO₃ +NO@ (as N), approximately equal to 135mg/L

**APPENDIX E: SANTA CLARA VALLEY WATER DISTRICT WATER SUPPLY
AVAILABILITY ASSESSMENT FOR CVSP**

ENCLOSURE

Water Supply Availability Analysis for the Coyote Valley Specific Plan

April 2005

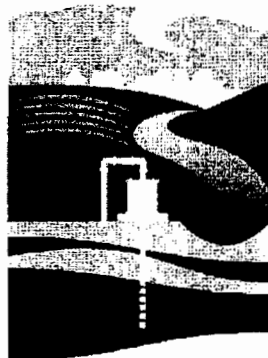
Prepared by

Barbara Judd
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Under the direction of

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Unit Manager
Groundwater Management Unit



**groundwater
management**

**Santa Clara Valley
Water District**



Coyote Valley Specific Plan Water Supply Availability Analysis

The City of San Jose is currently preparing for the development of the Coyote Valley, and has asked the District to provide information on the water supply available to serve the development that will result through the Coyote Valley Specific Plan (CVSP).

Under SB 610, preparing the Water Supply Assessment for new development is the responsibility of the appropriate water retail agency. However, if the CEQA lead agency is unable to identify the retail water supplier for the project, then the lead agency is responsible for preparing the SB 610 Assessment. Given the District's role as the water wholesaler and groundwater manager in this area, the City as lead agency has requested that the District, in a consultation role, provide information relevant to the water supply for the proposed CVSP. This information will aid the City in its preparation of the SB 610 Water Supply Assessment.

This document was prepared in response to that request, and includes: a discussion of the existing conditions in Coyote Valley, the projected water supply based on current operations and facilities, and the estimated water demand after the CVSP is in place. Possible alternatives for supplementing the water supply in Coyote Valley are also discussed. The information in this analysis is consistent with the District's 2001 Urban Water Management Plan (UWMP) and the 2003 Integrated Water Resources Planning Study (IWRP), both of which considered the water demand from the proposed CVSP. How the alternatives fit into these existing District Plans is also discussed.

In May of 2004, the District provided guiding principles to help the City of San Jose and its consultants in identifying, developing, ranking, and implementing alternatives for the CVSP. By following those guiding principles, the City can help ensure the District's success in meeting the long-term needs of those who live and work in Santa Clara County, including the Coyote Valley.

The following analysis relies on information currently available from the City of San Jose and its CVSP core consultant team as well as the District's UWMP, IWRP, and other District sources. As more information is developed or our understanding changes through the land use planning and CEQA processes, some of the following analysis may need to be updated.

Coyote Valley and the District's Urban Water Management Plan

During the preparation of the District's 2001 UWMP, City of San Jose staff informed the District of the long-term vision for the Coyote Valley. Based on this information, the UWMP did include the vision's projection of 25,000 households and 50,000 jobs for the Coyote area.

As stated in the UWMP, the District's Board of Directors has adopted Ends Policies as direction to the CEO and staff as to the intended results of District actions. These Ends Policies, and how they can be used to guide the CV SP, were provided to the City in a document entitled "The Santa Clara Valley Water District's Guiding Principles for the City of San Jose's Coyote Valley Specific Plan" in May 2004 and are attached for reference. Following the guiding principles will help ensure the District's success in meeting the long-term needs of those who live and work in Santa Clara County, in accordance with the District's adopted Plans such as the UWMP.

In recognition of the high variability in hydrology and the importance of a reliable water supply in all years, not just on average, The UWMP and the IWRP evaluate the water supply outlook under different hydrologic conditions. Although the water supply information in this WSAA has

been updated from that found in the 2001 UWMP to reflect the District's increased understanding of the Coyote Subbasin, the same approach for characterizing water supply is used. As described later in this document, the water supply projections are very similar and the differences do not substantially change the water supply reliability estimates for the Coyote Valley.

Water conservation was identified as an important component of meeting future water needs in both the IWRP and the UWMP. Recycled water is also one of the key components of the District's water supply mix. As stated in the UWMP, the District target is that water recycling will account for 10 percent of the total water supply in Santa Clara County by the year 2020. Promoting water use efficiency measures such as water conservation and water recycling in major new developments like the CVSP is consistent with the District's water supply planning as adopted in the UWMP and the IWRP.

Background

The mission of the District is a healthy, safe, and enhanced quality of living in Santa Clara County through watershed stewardship and comprehensive management of water resources in a practical, cost-effective and environmentally sensitive manner. As the County's water wholesaler, the District helps ensure there is enough water for the area's needs now and in the future, while maintaining flood protection and protecting the environment.

Since the 1850s, groundwater has been an important component of water supply in Santa Clara County. Historical overpumping of the groundwater subbasin and significant land subsidence in the northern portion of the county led to the formation of the District as the county's groundwater management agency in 1929. Growing populations increased demands on the groundwater subbasin. Land subsidence continued and led to the construction of ten local storage reservoirs, with a combined capacity of 169,000 acre-feet, the importation of surface water, and the construction of three water treatment plants. Today, the District conjunctively manages groundwater and surface water to provide a reliable water supply for the county's 1.7 million residents and its businesses.

The District operates and maintains a countywide conservation and distribution system to convey untreated surface water to groundwater recharge facilities and treatment plants, and to convey treated water to retailers. This water conservation and distribution system includes local reservoirs designed to capture and store runoff, three water treatment plants, District in-stream and off-stream groundwater recharge facilities, and the groundwater subbasins.

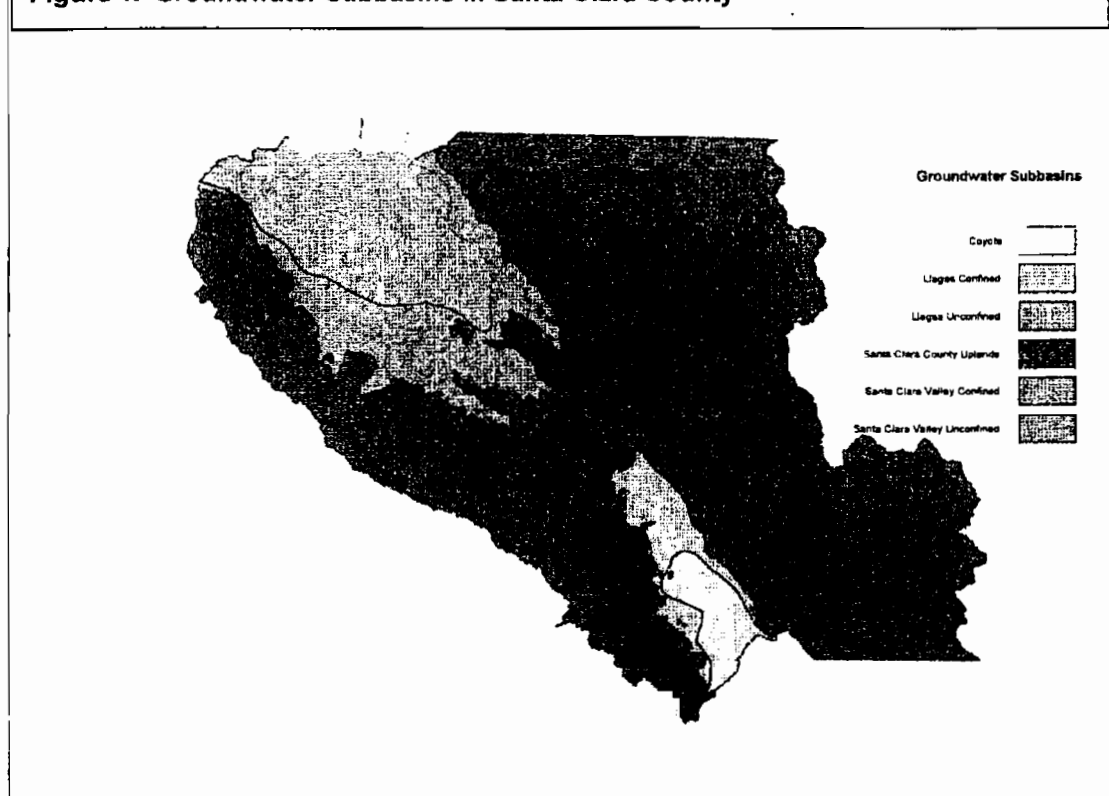
Santa Clara County Groundwater Subbasins

Santa Clara County contains three interconnected groundwater subbasins that transmit, filter, and store vast quantities of water. These subbasins are shown in Figure 1.

The Santa Clara Valley Subbasin in the northern part of the county extends from Coyote Narrows at Metcalf Road to the county's northern boundary. The subbasin is bound on the east by the Diablo Range and on the west by the Santa Cruz mountains; these two ranges nearly converge at the Coyote Narrows. The Coyote Subbasin extends from Metcalf Road south to Cochrane Road, where it meets the Llagas Subbasin at a prescribed boundary that generally coincides with a groundwater divide. The Llagas Subbasin extends from Cochrane Road, in Morgan Hill, to the county's southern boundary. The subbasin is hydraulically connected to the Bolsa Subbasin of the Hollister Basin and is bounded on the south by a prescribed boundary at the Pajaro River (the Santa Clara - San Benito County line).

The three subbasins serve multiple functions. They transmit water through the gravelly alluvial fans of streams into the aquifer zones. They filter water, making it suitable for drinking and for municipal, industrial, and agricultural uses. The subbasins collectively also have vast storage capacity, together providing protection against drought and surface water interruptions. Groundwater elevations are affected by natural and artificial recharge and groundwater extraction, and are an indicator of how much groundwater is in storage at a particular time. Both low and high elevations can cause adverse conditions. Low groundwater levels can lead to dry water-production wells and adverse impacts to fisheries and riparian habitats. High groundwater levels can lead to damaged crops, ineffectual septic systems, and nuisance conditions for below-ground structures necessitating dewatering.

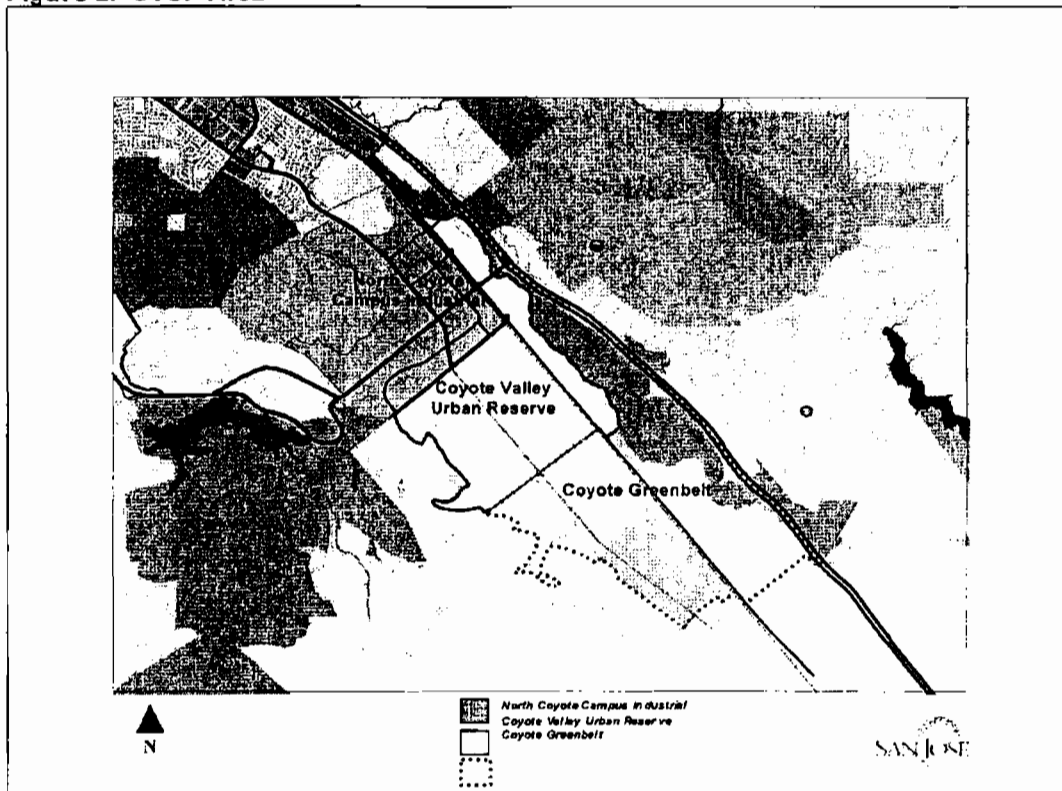
Figure 1. Groundwater Subbasins in Santa Clara County



The Coyote Valley Specific Plan

The Coyote Valley Specific Plan (CVSP) being developed by the City of San Jose calls for a mixed used development of more than 25,000 residences and 50,000 jobs within an area that extends from the Coyote Narrows in the north almost to Burnett Avenue in the south. Although this area makes up the majority of the Coyote Subbasin, the subbasin includes some additional area, primarily to the south and to the east. The CVSP is shown in Figure 2.

Figure 2. CVSP Area



Evaluating the future water supply for the CVSP entails looking at the water use and water supply for the Coyote Subbasin as a whole, including not only the greenbelt area but also a portion of the City of Morgan Hill that is also served by groundwater from the Coyote Subbasin. This is necessary since all users within the subbasin impact each other, relying on a shared source of supply.

Historical and Existing Conditions in the Coyote Valley Area

The Coyote Subbasin is approximately 7 miles long and 2 miles wide and has a surface area of approximately 15 square miles. The Coyote Subbasin is generally unconfined and has no significant, laterally extensive clay layers. The Coyote Subbasin is hydraulically interconnected with the Santa Clara Valley Subbasin to the north, and groundwater generally flows north from the Coyote Subbasin into the Santa Clara Valley Subbasin.

Coyote Creek flows north along most of the length of the subbasin near its eastern extent, downstream of and benefiting from controlled releases from Anderson and Coyote Reservoirs. Fisher Creek is an unregulated stream on the west that also flows north, receiving drainage from a significant portion of the Coyote valley floor before converging with Coyote Creek near the Narrows. In its downstream reaches, Fisher Creek gains flow from the subbasin during high groundwater conditions. Both creeks support important habitat corridors, including steelhead and salmon fisheries within Coyote Creek.

The water needs of this area are currently served by the Coyote Subbasin primarily. The subbasin is replenished both by natural recharge and by artificial recharge from controlled

releases to Coyote Creek. The District's Cross Valley pipeline traverses the area, carrying water from the Central Valley Project's San Felipe Division as well as, potentially, water from Anderson Reservoir to the District's water treatment plants and recharge facilities in the northern portions of the County. Recycled water is scheduled to be delivered to the Metcalf Energy Center in the northern area of the Coyote valley from the City of San Jose's South Bay Water Recycling Program. This projected demand of about 2850 acre-feet per year will continue to be served by recycled water in the future as well.

Historically, low lying areas in the north and western portions of the valley have experienced drainage difficulties, including high groundwater conditions. The operational storage of the Coyote Subbasin is estimated to be quite small, only about 25,000 acre-feet. Maintaining groundwater supplies while avoiding nuisance high-groundwater conditions is a challenge made even more difficult by the important fishery and habitat needs supported by Coyote Creek.

As an unconfined aquifer with little separation between the land surface and groundwater surface, the subbasin is also very sensitive to potential groundwater contamination. The valley is largely rural currently, although nitrates from septic systems and agricultural runoff are found in some areas. As the area urbanizes, additional potential sources of contamination (such as urban runoff, gas stations, dry cleaners, and leaking sewer lines) may present new challenges.

Existing Groundwater Elevations

General groundwater elevations in the Coyote Subbasin are represented by three index wells shown in Figure 3. Throughout 2003, groundwater elevations were at least 34 feet above minimum recorded levels and at least 13 feet below the maximum levels recorded in 1983.

General groundwater elevation conditions for the Coyote Subbasin are shown on composite contour maps showing lines of equal groundwater elevation for spring and fall 2003 (Figures 4 and 5). Data from 49 wells were used to construct these contour maps. These maps show a fairly significant decline in groundwater elevations between the spring and fall. This decline is an annual phenomenon that corresponds to the agricultural irrigation season and increased summer water use. Groundwater elevations increase in the winter, when most groundwater extraction for irrigation stops and the rainy season begins.

Figure 3. Hydrograph for Coyote Subbasin Index Wells

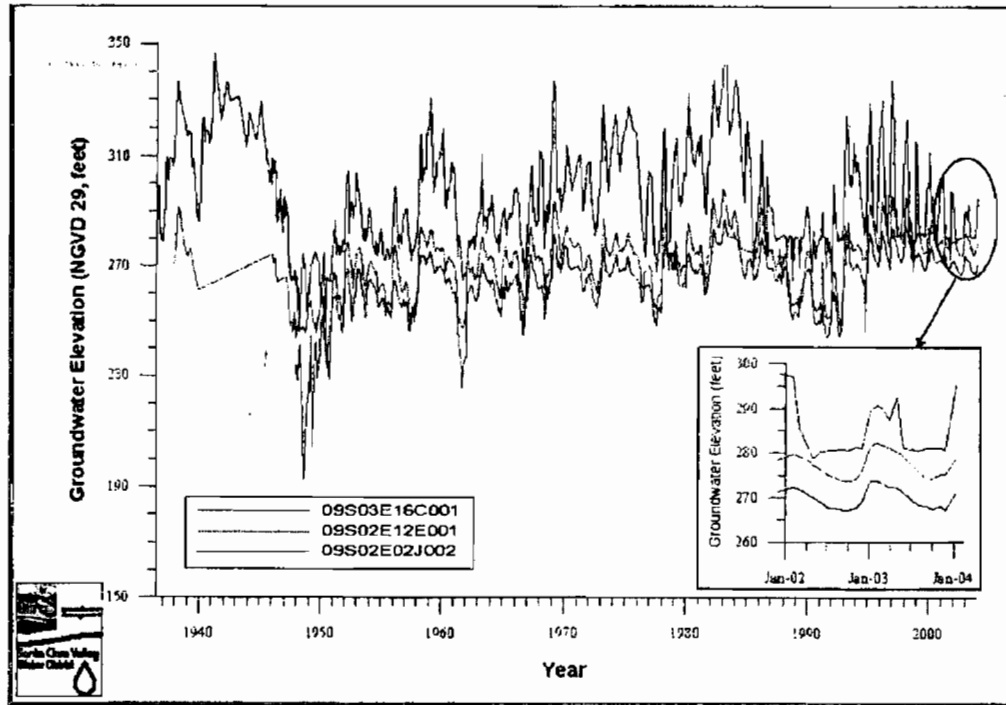


Figure 4. Groundwater Elevation Contours Spring 2003

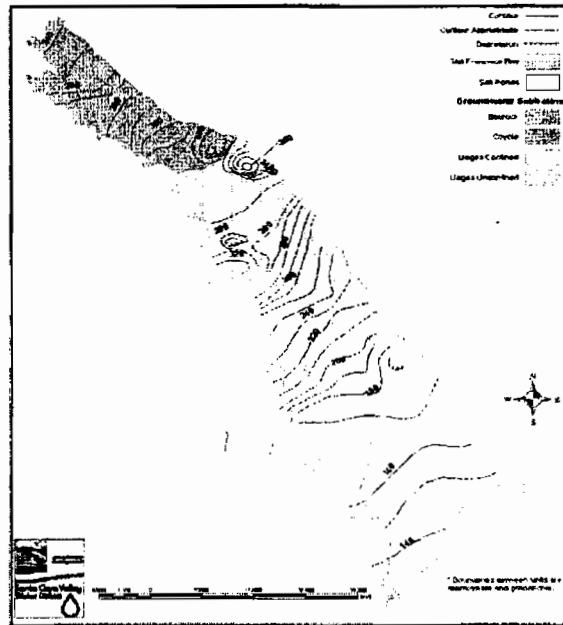
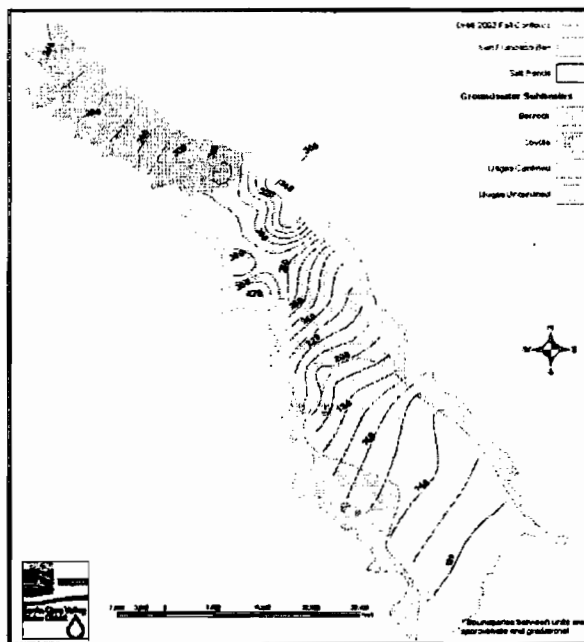


Figure 5. Groundwater Elevation Contours Fall 2003



Existing Groundwater Quality

Existing groundwater quality in the Coyote Subbasin is quite good, although there are wells with nitrates above the Drinking Water Standard. Figure 6 summarizes typical groundwater concentrations within the Coyote Subbasin.

Figure 6. Typical Concentration Ranges for Common Inorganic Constituents^a

Constituent	Coyote Subbasin Principal Aquifer Zone ^b	Drinking Water Standard ^c	Agricultural Objective ^d
Aluminum (ug/L)	<50	1,000	5,000
Arsenic (ug/L)	<2	50	200
Barium (ug/L)	<100 - 126	1,000	-
Beryllium (ug/L)	<1	4	500
Boron (ug/L)	<100 - 132	-	200
Bromide (ug/L)	<Detection Limit or ND	-	-
Cadmium (ug/L)	<1	5	50
Calcium (mg/L)	37 - 69	-	-
Chloride (mg/L)	17 - 40	600	355
Chromium, Total (ug/L)	<1 - 2	50	1,000
Copper (ug/L)	<50	1,000	500
Fluoride (mg/L)	<0.100	1.7	2
Hardness (mg/L as CaCO ₃)	180 - 294	-	-
Iron (ug/L)	<100 - 700	300	20,000
Lead (ug/L)	<5	15 ^e	100
Magnesium (mg/L)	22 - 43	-	-
Manganese (ug/L)	<20	50	10,000
Mercury (ug/L)	<1	2	-
Nickel (ug/L)	<10	100	2,000
Nitrate (mg/L as NO ₃)	6 - 48	45	135 ^e
Selenium (ug/L)	<2 - <5	50	20
Silver (ug/L)	<1 - <10	100	-
Sodium (mg/L)	17 - 33	-	-
Specific Conductance (uS/cm)	516 - 625	2,200	3,000
Sulfate (mg/L)	30 - 60	600	-
Total Dissolved Solids (mg/L)	270 - 430	1,500	10,000
Zinc (ug/L)	<50	5,000	10,000

^a Typical concentration ranges at the approximate 95% Confidence Interval estimate of the true population median.

^b Principal Aquifer Zone: Aquifer zone from which most water supply wells pump.

^c Drinking Water Standard: Maximum Contaminant Level (MCL) specified in Title 22 of the California Code of Regulations.

^d Agricultural Objective: Agricultural water quality objective in the 1995 Water Quality Control Plan for the San Francisco Bay Basin, Regional Water Quality Control Board.

^e Action level. California has not established a MCL for lead. However, there is a 15 ug/L action level for lead. The action level is exceeded if the concentration of lead in more than 10 percent of tap water samples is greater than 15 ug/L.

Nitrate Agricultural Objective: The value listed in the Basin Plan is 30 mg/L NO₃+NO₂ (as N), which is approximately equivalent to 135 mg/L nitrate.

Existing and Historical Water Use

The District has groundwater pumping data for the Coyote Valley dating back to July of 1987, as summarized below in Figure 7. The water uses currently in the subbasin include agricultural, domestic, and municipal and industrial. Some of the City of Morgan Hill water supply is also met by groundwater pumping from the Coyote Subbasin.

Figure 7. Historical Groundwater Pumping in acre-feet

Year	Pumping, in acre-feet
1987 (half-year)	3,709
1988	7,003
1989	6,012
1990	6,609
1991	6,434
1992	6,153
1993	6,106
1994	6,467
1995	6,693
1996	6,588
1997	8,004
1998	6,915
1999	7,784
2000	7,232
2001	6,947
2002	6,740
average	6,799

Existing Water Supply

The existing water supply is comprised primarily of groundwater, sustained by both natural and artificial recharge. Local water captured by the Anderson/Coyote reservoir system and imported water from the Central Valley Project both provide source water for recharge in Coyote Creek. It is estimated that the groundwater subbasin would remain in balance with an average annual pumping of about 8,000 acre-feet, given current District operations on Coyote Creek. The groundwater subbasin supply is discussed in more detail below.

Total Projected Demand and Water Supply for the Coyote Subbasin

Projected Water Demand

The water demand projections for the CVSP summarized below are described in more detail in the Water Demand Technical Memorandum prepared by HMM Engineers and dated June 30, 2004. These demand projections reflect the conceptual plan for the CVSP as of that time – as the land use plan is developed, the water demand projections for the CVSP will need to be updated. The demand projections described below and used in determining the sufficiency of the water supply are for project build-out; a timeline for the development of the CVSP has not been identified. It is anticipated that these demands will take decades to develop.

Greenbelt and Others

The current policies for the City of San Jose and for the County are for the areas in Coyote valley designated "greenbelt" to stay in their existing state. In estimating projected demand, it is

assumed that the greenbelt and other areas outside the CVSP planning area within the Coyote Subbasin will remain similar to existing land uses, with water demand similar to the existing water use. The existing water use for these areas is about 4,000 acre-feet annually. As more information is developed about any proposed changes to the greenbelt, this assumption of constancy will need to be revisited.

Residential

Demand projections for the CVSP proposed development was derived separately for the residential, employment, and community areas of the Plan. Water demand to serve the 25,000 new residential units was estimated using an average use of 300 gallons per unit per day. This usage rate is less than the single family residential household use reported in the City of San Jose Baseline Water Use Study and other sources of local water use. However, given the mix of multi-family and single-family housing units planned and the smaller lot sizes than typically found in San Jose currently, this figure seems reasonable for planning purposes. This results in a residential demand projection of about 8,400 acre-feet annually.

Employment

Water demand for the employment sectors was based on the assumption that the jobs will be predominately office jobs, with a typical usage of about 70 gallons per employee per day. Based on projected employment of 50,000 persons, this results in a projected demand of about 4,000 acre-feet annually. The 50,000 jobs is as per the City's Vision of 50,000 "industry driving" jobs, and does not include the support jobs that would arise (such as retail jobs).

Community Uses

Insufficient information is available at this time to estimate the water use for other features, such as the parkways, public areas, and support-sector employment not considered as part of the 50,000 jobs (such as local retail).

Demand Range

The demand range was developed using the minimum household and jobs totals targeted in the CVSP vision. Given that these demand projections have been developed in advance of the land use plan and Specific Plan EIR and thus more precise projections are not possible at this time, a demand range of 16,000 to 20,000 of acre-feet annual demand was agreed upon by the District and the CVSP consultants for use in water supply analysis estimates at this point. As more detail is known about the CVSP, the demand projections will be refined and the demand range will most likely narrow.

Projected Water Supply

Current water use in Coyote Valley is supplied from the groundwater subbasin. The source of this supply is from both natural recharge and artificial recharge (recharge through Coyote Creek resulting from managed releases from Anderson Reservoir). The natural recharge that occurs throughout the valley from rainfall percolation is typically less than the evapotranspiration losses in the valley. Coyote and Fisher Creeks both generally lose water to the groundwater subbasin, although Fisher Creek is a gaining stream in its lower reaches when the groundwater elevation is high. The Coyote Subbasin also feeds water to the north through the Coyote Narrows, a natural flow condition that should be maintained.

The water supply to the Coyote Valley is largely dependent on Coyote Creek, which is predominantly controlled by the operation of Anderson and Coyote Reservoir System upstream. The District is the primary water rights holder for surface waters in the Coyote Creek system, and the Creek is considered to be fully appropriated. This analysis assumes similar operations of the reservoirs in the future, in accordance with provisions of the District's water rights and objectives for flood protection, environmental stewardship, and water supply management. If fishery or other environmental considerations result in a change from current operations, those changes could impact the water supply available within the CVSP.

The historical water balance for the Coyote Subbasin is tabulated below in Figure 8. Areal recharge occurs throughout the subbasin through mechanisms such as rainfall and agricultural return flows. Net river recharge reflects the amount of water recharged into the subbasin via Fisher and Coyote Creeks, primarily through artificial recharge of water resulting from District operations on Coyote Creek. Evapotranspiration, or ET, are losses to the subbasin due to evaporation or uptake from plants of water in the soil. The groundwater outflow term in the table reflects the naturally occurring flow of groundwater from the Coyote Subbasin to the hydraulically-connected Santa Clara Valley Subbasin to the north. (Maintaining this flow avoids adverse impacts to the water supply in the Santa Clara Valley Subbasin.) The total supply reflects these inflows and outflows, summarizing the total supply within the groundwater subbasin under historical conditions (both rainfall and District operations).

Figure 8. Water Supply for the Coyote Subbasin assuming Historical Hydrology

CY	Areal Recharge	Net River Recharge	Net ET	GW Outflow	Total Supply
1988	1933	5251	-56	-4888	2239
1989	1605	7604	-30	-5889	3290
1990	2042	8953	-14	-6227	4754
1991	2942	6760	-6	-5851	3845
1992	3624	8901	-6	-5806	6714
1993	3298	10762	-12	-4527	9520
1994	1916	8430	-24	-2922	7399
1995	4095	9081	-50	-3069	10058
1996	3612	11597	-78	-3460	11671
1997	2707	12413	-115	-3685	11320
1998	3586	9897	-127	-3786	9570
1999	1905	7493	-78	-3981	5340
2000	2055	11584	-87	-4497	9055
2001	2700	8623	-88	-4279	6955
2002	2289	8228	-77	-4100	6339

The average annual water supply over this 15 year period is 7,205 acre-feet. However, the table also shows some of the natural variability that occurs with water supply in the Coyote Subbasin – the supply ranges from a minimum of 2,239 acre-feet in 1988 to a high of 11,671 acre-feet in 1996. This supply has been sufficient to meet historical pumping (shown in Figure 7) due to the usable groundwater storage of the Coyote Subbasin.

It is estimated that in a repeat of 1988 conditions, the driest hydrologic year of record in Coyote Valley, the available water supply would only be 2,239 acre-feet. What demand could be met under this supply scenario depends on the groundwater storage at the beginning of the drought and how much of that groundwater storage can be withdrawn without adverse impacts.

These water supply estimates reflect greater understanding of the Coyote Subbasin as a result of additional data and groundwater modeling analysis. However, the underlying variability and

reliability of the water resource is not substantially different than that described in the UWMP, as tabulated in Figure 9. Figure 9 values are somewhat lower than those shown in Figure 8 since they do not show the supply that available through District artificial recharge activities that occur in Coyote Creek.

Figure 9. UWMP Natural Coyote Subbasin Supply (in acre-feet per year)

	Coyote Subbasin Groundwater Supply
Wet Year	10,000
Long Term Average	4,900
Single Dry Year	0
Critical Dry Period (Multiple Year Drought)	3,200

In its long-term water supply planning, the District looks at historical hydrology. In the UWMP and the 1997 Integrated Water Resources Plan, the Critical Dry Period was used, which was a statistical extension of the 1987-1992 drought into a 10-year 1% probability event. The 2003 IWRP and current interpretation of Board Ends Policies for water supply reliability use repeats of historical hydrology rather than the more severe Critical Dry Period.

The District's current target in its long-term water supply planning includes being able to meet demands in a repeat of the 1987-1992 drought, if it should occur, without drought-response water rationing. (This is not a "worst-case" scenario in that droughts of this magnitude have occurred twice in the 82-year hydrologic record typically used to assess California's water supply.) Unfortunately, District records for Coyote Valley begin in July 1987, so only 5 years of this 6-year drought are captured in this analysis. The average supply during this 5-year period in the Coyote Subbasin is calculated to be 4,168 acre-feet annually. (If 1987 were included, the average would be expected to be slightly lower). As with the single dry year, what demand can be met during a multi-year drought depends on the groundwater storage at the beginning of the drought and how much of that groundwater storage can be withdrawn without adverse impacts. On average, the groundwater pumping that can be met within the subbasin is limited to approximately 8,000 acre-feet a year with existing supplies.

Operational Groundwater Storage Capacity

The District's current estimate of the operational storage capacity of the Coyote Subbasin is 25,000 acre-feet. This value was computed using a static analysis and assumes that the subbasin can be operated such that this maximum value can be extracted -- it is as if the groundwater subbasin is a homogeneous body and that you could optimize groundwater subbasin performance by having all the pumping occur in the right places. In reality, changes in artificial recharge, changes in pumping patterns and locations, and changes in demand scenarios change the operational storage that can be achieved.

This estimate of Coyote Subbasin operational storage is consistent with that used in the IWRP analyses, but is a change from that used in the UWMP. The UWMP and the 1997 IWRP assumed no year-to-year operational storage volume for this subbasin.

This water supply analysis is based on a water balance approach using historical pumping. The development of the CVSP will change the supply in ways that cannot be fully quantified until the source of supply for the CVSP is determined. For example, although we can expect to see some additional recharge from Coyote and Fisher Creek with greater pumping and drawdown of the groundwater subbasin, this increase is small and its value is offset by a loss of groundwater storage reserve. Operationally, consistent drawdown of the groundwater subbasin will result in dry wells in some areas of the subbasin, adverse impacts to the natural flow to the Santa Clara

Valley Subbasin, and decrease in groundwater storage reserves that are crucial for emergency backup and as a drought supply.

Water Supply Augmentation Alternatives

The District uses an integrated water resources planning (IWRP) process to make its long-term investment decisions for water supply management. This process approaches decisions broadly and inclusively, incorporating community involvement and flexibility to respond to changing and uncertain future conditions. Choosing what water resource options to pursue in the future requires balancing multiple, often competing objectives, that reflect the District's overall mission and Board's Ends Policies, including

- Ensuring supply reliability;
- Ensuring supply diversity;
- Ensuring water quality;
- Minimizing cost impacts;
- Maximizing adaptability to changing conditions;
- Protecting the natural environment; and
- Ensuring community benefits including flood protection and recreation.

These objectives are in keeping with District planning, including the 2003 IWRP.

Augmenting the water supply in Coyote can be achieved in a number of ways. How well these differing alternatives meet the District's established policies and previous water supply planning are described below.

Alt 1. Recycled Water for Irrigation and Non-potable Uses

- A. using District's existing Silver Creek Pipeline capacity
- B. expansion of the SBWR delivery capacity
- C. scaling plant in the Coyote Area

The CVSP consultants have estimated that the large landscape area (parks, schools, right-of-ways, and open space) within the CVSP is 730 acres, with an estimated water usage of 4,000 acre-feet per year. In addition, it is estimated that approximately 1,000 acre-feet of demand in the greenbelt area (primarily at the Coyote Creek Golf Club) could also be met with recycled water if it were available. The quantity of recycled water that could be supplied for other non-potable uses besides large landscape irrigation, such as dual plumbing of office buildings and residential yards, has not been quantified at this time.

Given the hydrogeology of the Coyote Subbasin, even when recycled water is intended for irrigation, some of this applied water will work its way to the water table and the principal aquifer. The recently completed Advanced Treated Recycled Water Feasibility Study concluded that the existing tertiary treated recycled water could have impacts on Coyote Valley groundwater quality if used in that area. Using the results of this feasibility study, additional staff analysis that considered all applicable regulations concluded that recycled water used in Coyote Valley that could percolate into the groundwater subbasin be fully advanced treated. Full advance treatment often includes reverse osmosis and ultraviolet light treatment, or similarly effective treatment options. This conclusion was supported by technical review performed by two different external consultants. This is consistent with the District's policy that the groundwater basins are aggressively protected from contamination and the threat of contamination as stated in the UWMP and the IWRP.

Advantages of recycled water use for meeting non-potable water demands are:

- Offsets demand from the groundwater subbasin (which has a limited delivery capacity, as discussed in alternative 4)
- Helps the San Jose/Santa Clara Water Pollution Control Plant remain under the discharge flow cap by providing an alternative to discharge for some of the new wastewater flows generated by the CVSP development. This also creates environmental benefits to the South Bay habitats
- Consistent with state law that promotes recycled water use when appropriate—
- Consistent with the CVSP Evaluation Criteria promoting Ecological Sustainability (including the sub-criterion to "Maximize the use of recycled water" among others) and with District policy
- Provides a reliable new water supply consistent with the IWRP, available even in dry years
- Increases the amount of water from local sources in the overall District water supply mix, in keeping with IWRP findings and recommendations
- Consistent with District policies promoting the expansion of water recycling in Santa Clara County and with the recycling targets used in the UWMP

Disadvantages:

- Requires a separate distribution system to provide water to various irrigation sites
- High cost associated with advanced treatment requirements for Coyote Valley
- Potential system capacity expansion costs, depending on how much recycled water is delivered to the CVSP (alternatives 1B and 1C).

The existing South Bay Water Recycling water system was recently expanded with the construction of the Silver Creek Pipeline Extension to deliver water to the Metcalf Energy Center (MEC). The SBWR system could also be used to serve recycled water to non-potable uses within the CVSP area. According to South Bay Water Recycling Program staff, the amount of recycled water available to Coyote Valley (excluding the MEC, which is already accounted for) with the existing recycled water system is limited to the 5 mgd capacity in the Silver Creek pipeline paid for by the District for the District's future use (Alternative 1A). Although it is expected that the SBWR program could supply more recycled water than 5 mgd, the delivery system would have to be expanded for recycled water use to exceed the District's 5 mgd share of the Silver Creek pipeline, adding delivery infrastructure costs (Alternative 1B). This increased capacity could be achieved through development of a parallel pipeline, increasing the recycled water delivery system reliability in addition to expanding the quantity of recycled water available for use in Coyote Valley and elsewhere south of the MEC. Another alternative for expanding the recycled water capacity beyond the District's 5 mgd share of the existing system is through the development of a scalping plant in the Coyote area (Alternative 1C). Diverting some of the wastewater stream from Coyote and treating it there provides another source of recycled water, one not dependent on the existing SBWR delivery system. This alternative would include significant infrastructure costs for the treatment facilities, however.

Serving the non-potable demands including the water needs for the focal point lake is estimated to require more water than the 4,000 acre-feet available per year from the existing recycled water system (when seasonal peaking constraints are taken into consideration). As further information on the potential market for recycled water for non-potable uses is developed through the land use plan, the ultimate capacity of these recycled water alternatives should be revisited.

Alt 2. Surface Water Delivery with a New Water Treatment Plant

Additional surface water delivery to Coyote Valley is one possible alternative water supply. For this supply to be usable to meet the potable water demands for the CVSP, the water would

either need to be treated or percolated into the groundwater subbasin for later extraction. Surface water for recharge is discussed in Alternative 4 below.

A new water treatment plant to serve South County, including Coyote Valley, was evaluated in the District's IWRP. The IWRP 2003 recommended pursuing other alternatives such as water use efficiency and groundwater recharge over a treatment plant.

Advantages:

- Provides an alternate means of delivering potable water besides the groundwater subbasin to the residents and businesses in South County, much as the District's three water treatment plants provide an alternate source of potable water in North County.

Disadvantages:

- Requires ongoing operations and maintenance costs and significant construction costs for new water treatment facilities.
- In and of itself, does not provide an additional water supply source to Santa Clara County and is not consistent with IWRP findings and recommendations.
- Does not provide reliability to Coyote Valley water users. The sources of supply to serve a water treatment plant in Coyote Valley are not as varied as in North County, and the reliability of the source water for the treatment plant is low. If the District's existing Coyote Creek water rights and San Felipe Division contracted water supplies are utilized, insufficient water will be available to meet treatment plant needs during drought and imported water outages (as described further in Alternative 4.)

Alt 3. Diversion of Groundwater from the Santa Clara Subbasin

The CVSP consultants have identified pumping groundwater from the Santa Clara Valley Subbasin for use within Coyote Valley as a water supply alternative. This alternative relies on a new well with a capacity of 5 mgd. This alternative does not provide new water; rather, it reallocates water from the Santa Clara Valley Subbasin to the Coyote Valley.

Advantages:

- Provides access to the larger operational storage capacity and varied sources of supply available to the Santa Clara Valley Subbasin
- Serves much like an system interconnection providing a redundancy in case of emergency outage, even if the facilities are not used as a regular water supply

Disadvantages:

- Requires additional sources of supply to mitigate the impacts on existing users within the Santa Clara Valley Subbasin.
- In analyzing this alternative, this diversion appears to be technically feasible; however, operational analyses show it does reduce the water storage relied upon by the existing users in the northern subbasin for emergency backup supply and drought protection, adversely impacting the water reliability for users of the Santa Clara Valley Subbasin.

The quantity of water exchanged in the analysis of this alternative was 5 mgd, or 5,600 acre-feet per year. Sources of supply to offset the impacts of this exchange on the Santa Clara Valley Subbasin have not been identified, and the costs associated with acquiring this additional source of water and mitigating the impacts to existing water supply users could be significant.

Alt 4. Additional Groundwater Pumping

A. With additional surface water recharge

B. With recharge of fully advanced treated recycled water for indirect potable use

Although a water balance approach like that described above might suggest that a certain quantity of water can meet a given level of demand, that does not mean that operationally facilities exist to support that situation. For example, there is a limit to how much pumping the groundwater subbasin can support. The hydrogeology of the subbasin and the location and timing of pumping and recharge throughout the subbasin impact the total amount of water that can be extracted at any one time. For its water supply planning, the District uses a groundwater model rather than a water balance approach to determine water supply reliability.

Physical Limitations on Additional Groundwater Extraction

The District has performed groundwater model analyses to help identify how much water could be extracted from the subbasin if the CVSP were implemented as per current understanding. For the District analysis, the CVSP demand was assumed to be served via new wells located along Monterey Road, as per conversation with City of San Jose consultants. At the time this analysis was performed, no information was available on the seasonal variability of the projected demand, so the groundwater pumping was assumed to be evenly distributed over the year. Information on the relocation and new cross-section of Fisher Creek was also not available at the time of the analysis, so Fisher Creek was left in its original condition in the modeling. As more information is developed on these and other assumptions through the EIR process, the analysis should be revisited to confirm these preliminary results.

Modeling simulations were performed to determine what amount of the 16,000 to 20,000 acre-foot annual demand could physically be delivered via the groundwater subbasin. (As mentioned above, the groundwater subbasin under current recharge operations can only reliably supply 8,000 acre-feet annually on average). Increasing the CVSP pumping resulted in drying out some areas of the subbasin, particularly in the southwest area. In the simulations, adding additional recharge via percolation ponds in the greenbelt (in the vicinity of the District's existing Cross Valley Pipeline) was able to help alleviate this problem. To test the degree of additional pumping that is physically feasible, as a starting point the groundwater analysis assumed a reliable water supply would be available to feed both Coyote Creek and new recharge facilities. The possible limitations in this future supply is discussed later in this document.

By adding an additional 6,000 acre-feet annually in water supply through new recharge facilities, it was possible to extract 13,000 acre-feet annually from the Coyote Subbasin without adversely impacting existing uses through a repeat of 1988 through 2002 hydrology. Even with additional recharge (beyond the existing Coyote Creek recharge and this supplemental 6,000 acre-feet annual recharge), adverse impacts result from pumping quantities greater than 13,000 acre-feet annually.

This limitation is a very important consideration in identifying possible supplemental water alternatives for the CVSP. Even with additional recharge of 6,000 acre-feet per year, total groundwater pumping within Coyote Subbasin is limited to 13,000 acre-feet. Additional supply for recharge above this amount will not increase the amount that can be pumped.

Possible Sources of Supply for Groundwater Augmentation

- Water Supply via the Cross Valley Pipeline (Alternative 4A). The District's Cross Valley pipeline crosses the Coyote Valley in the south and southwest areas. One possibility is to use this pipeline to convey water to additional recharge facilities to increase the potential groundwater extraction in the Coyote Subbasin. In and of itself, these recharge facilities do not constitute a new supply, but rather a mechanism for getting supplies into the subbasin. In analyzing the District's existing supply sources, two can feed the cross valley pipeline: Anderson Reservoir and San Felipe Division imports from the Central Valley Project.

Advantages:

- Maximizes use of the groundwater subbasin as a distribution and storage system

Disadvantages:

- Does not provide reliability to Coyote Valley water users.

The existing supply sources that feed the cross-valley pipeline have dry year limitations. If impacts to existing water users are minimized, no additional water would be available to be recharged from the District's existing sources of supply during dry years, such as 1987-1992 and 1994. Less than 6,000 acre-feet would be available in years like 1995, 1997, and 1997. The necessary 6,000 acre-feet would be available in many wetter-than-average years, however, such as 2000 and 2001. Pumping from the Coyote Subbasin would be limited to a maximum of 8,000 acre-feet during dry years like 1988 through 1994.

If the CVSP water needs are prioritized over existing uses in the county, there would be an impact on groundwater resources elsewhere. For example, it is projected that the groundwater reserves in North County would drop almost an additional 40,000 acre-feet in a repeat of the 1987-88 drought, compared to what would occur without this additional recharge diversion for the CVSP.

The hydrologic variability discussed above is not the only challenge to water reliability relying on the Cross Valley Pipeline sources. In addition, the CVP water source is subject to outages when San Luis Reservoir drops below a certain elevation, referred to as "low point". The above discussion is based on a successful resolution of the San Luis low-point problem, possible solutions to which are currently being studied by the U.S. Bureau of Reclamation and the District.

Current estimates are that the CVP supply will be unavailable during some late summer and fall months in many years (approximately 1 year out of every 2) under future operations, unless a low point solution is implemented. Even if the Coyote recharge diversion is prioritized, no water would be available during low point months. In dry years like 1977, water would only be available in January and February for example.

- Recycled Water for Indirect Potable Use (Alternative 4B). Fully advanced treated recycled water using reverse osmosis and ultraviolet treatment could provide source water for supplementing the groundwater subbasin.

Advantages:

- Provides a reliable water supply consistently available regardless of hydrology, low-point, or Delta outages
- Consistent with CVSP Evaluation Criteria emphasizing ecological sustainability and resource conservation

Disadvantages:

- Requires expansion of the recycled water transmission system or creation of a scalping plant in Coyote Valley
- High costs associated with full advanced treatment facilities
- Requires additional work to determine if there are institutional or regulatory barriers or public perception challenges that preclude the use of advanced-treated recycled water for recharge in Coyote Valley.

Regardless of the source of supply for groundwater recharge, the additional pumping possible from the groundwater subbasin is no more than 5,000 acre-feet annually, to a total of 13,000 acre-feet. With recycled water system expansion or a scalping plant in Coyote, recycled water could provide the 6,000 acre-feet annually of additional recharge needed to meet the 13,000 acre-feet annually pumping rate in all year types.

Alt 5. Treated Water Deliveries from Santa Teresa Water Treatment Plant

The District's existing Santa Teresa Water Treatment Plant is located to the north of Coyote Valley in Almaden Valley. One alternative for supplying water to Coyote Valley would be the expansion of this treatment plant with a new pipeline to serve the CVSP.

Advantages:

- Provides access to the more varied sources of supply available to the Santa Teresa Water Treatment Plant
- Serves much like an system interconnection providing a redundancy in case of emergency outage, even if the facilities are not used as a regular water supply

Disadvantages:

- Requires additional sources of supply to mitigate the impacts on existing users of Santa Teresa Water Treatment Plant and others within the Santa Clara Valley Subbasin.
- Infrastructure costs, including the treated water pipeline connection and possibly expansion of the water treatment plant itself.

Alt 6. Additional Water Use Efficiency Measures in the CVSP

The water demand projections for the CVSP development assume that water use efficiency measures will be utilized to the maximum extent practicable, and therefore water savings from conservation is not quantified as a water supply alternative in this analysis. As stated below, the District in its planning for meeting the water needs of Coyote Valley assumes that water use efficiency will be incorporated, and urges the City to ensure that is the case as the CVSP is planned and ultimately developed. Efficient water use is consistent with District's policies, IWRP, and UWMP.

Water Supply Augmentation Costs

The cost of any of these water supply augmentation alternatives is significant. Additional groundwater pumping will require land acquisition for constructing new recharge ponds in addition to ongoing operations and maintenance. The capacity of the Coyote groundwater subbasin is small compared to the size of the water demand at build-out – ensuring dry year reliability will not be possible utilizing the Coyote Subbasin capacity alone.

Ensuring dry year reliability will require either a water supply source that is not dependent on hydrology (such as recycled water) or expensive dry year water supplies to supplement the existing supplies. Although recycled water can provide a reliable source of supply, its use in Coyote Valley will require additional treatment costs to protect the groundwater resource.

Maximizing water use efficiency and groundwater protection measures as the CVSP is developed will help keep the water supply more affordable in the long-term for the residents and businesses in this new community.

Considerations for the CVSP

To help ensure a clean, safe, reliable and affordable water supply for all water users within the Coyote Valley, the District advises the CVSP team to include the following considerations in the land use planning phase and the CVSP EIR:

Water Use Efficiency

Evaluation criteria for the CVSP development includes ecological sustainability: "CVSP should be designed to minimize waste, efficiently use its natural resources, and to manage and conserve them for use of the present and future generations", including conserving water as a precious resource.

Toward this end, the District encourages the use of water use efficiency measures throughout the CVSP, including residences, businesses, landscaping, and public areas. Water efficiency measures that should be promoted by the City in the CVSP include:

- Dual plumbing for both interior and exterior recycled water use;
- Construction standards that require high-efficiency fixtures (for example, high-efficiency 1.2-gallons-per-flush toilets);
- Construction standards that require high-efficiency devices for outdoor water uses (such as self-adjusting weather-based irrigation controllers);
- The use of fully advanced treated recycled water for irrigation of large landscaped areas;
- The use of fully advanced treated recycled water for all water features, such as fountains as well as the focal-point lake and urban channel;
- Enforcement of the City's Model Water Efficient Landscape Ordinance (as per AB 325 1990);
- Promotion and use of drought tolerant and native plantings in landscaping.

As the project is implemented and this new community is developed, there will be numerous opportunities to include these and other resource-efficient measures. Both the City of San Jose Environmental Services Department and the District have staff that can help evaluate and implement conservation measures to help ensure that Coyote Valley will be the ecologically sustainable green showcase envisioned by the CVSP.

Groundwater Protection

Board Ends Policy 2.1.5. The groundwater basins are aggressively protected from contamination and the threat of contamination.

Regardless of what supplemental water supply alternative is developed to support this development, protecting the groundwater subbasin from contamination and the threat of contamination is a crucial component of maintaining water supply reliability to all users within the Coyote Valley. Land uses within the CVSP have the potential to impact the water supply within the Coyote Subbasin. The ambient water quality for Coyote groundwater is excellent. However, the Coyote Subbasin is unconfined with little separation between the land surface and the groundwater, making the subbasin especially vulnerable to contamination. Given the sensitivity of the subbasin and importance of the groundwater resource to the CVSP, the District recommends taking steps above and beyond those required by state and federal law to protect the groundwater subbasin:

- Avoiding high-risk land uses such as underground chemical storage. If such uses cannot be avoided, then these businesses should be required to have groundwater monitoring on site and response plans in place, with monitoring beyond the minimum required by law;
- Establishing wellhead protection zones and siting facilities that pose significant risks to groundwater (such as gas stations and dry cleaners) far away from drinking water wells;
- Implementing institutional or structural best management practices for urban runoff, including treatment of surface runoff from commercial and industrial sites;
- Rigorous Commercial and Industrial pretreatment programs to minimize discharges to sanitary sewers;
- Construct piles and other deep excavations according to standards so there is no cross connection with between the surface and groundwater table.

Keeping Options Open

The District recommends that the land use plan incorporate flexibility for future water augmentation options, such as:

- Additional groundwater recharge. The District recommends that the land use plan reserve land in the greenbelt area with access to the District's Cross-Valley pipeline for future recharge facilities. These facilities can be compatible with other CVSP objectives, such as recreation.
- Large landscaped areas and water features like the focal lake should be designed to use appropriately treated recycled water from the South Bay Water Recycling Program.

In May of 2004, the District provided guiding principles to help the City of San Jose and its consultants in identifying, developing, ranking, and implementing alternatives for the CVSP. That document summarized goals that should be taken into consideration in the development of the land use plan for the CVSP from the perspective of the District's mission to ensure a reliable, high quality water supply, protection from floods, healthy creek ecosystems, and recreational opportunities for those who live and work within Santa Clara County. Following those guiding principles and the recommendations above will help ensure the District's success in meeting the long-term needs of those who live and work in Santa Clara County, including the Coyote Valley.

**APPENDIX F: SANTA CLARA VALLEY WATER DISTRICT COMMENTS
REGARDING WATER SUPPLY EVALUATION**

March 13, 2007

Mr. Les White
City Manager
City of San José
200 East Santa Clara Street
San José, CA 95113

Subject: Coyote Valley Specific Plan Water Supply Evaluation

Dear Mr. White:

The purpose of this letter is to transmit Santa Clara Valley Water District (District) comments on the City of San José's Water Supply Evaluation (WSE) for the Coyote Valley Specific Plan (CVSP). City staff worked closely with District staff on the WSE and based much of the analysis in the WSE on the District's Water Supply Availability Analysis and 2005 Urban Water Management Plan. The WSE predicts a water supply deficit of 10,500 acre-feet per year at CVSP build-out. District staff finds that the City's evaluation of water supplies that can fill that deficit are consistent with District Board policies, as discussed below.

The City recommends maximizing recycled water use, to the extent possible, for non-potable water demands and supplemental groundwater recharge requirements. Identified sources of recycled water are the San Jose/Santa Clara Water Pollution Control Plant or the South County Regional Wastewater Authority. The WSE also notes that the District will require any recycled water that has the potential to infiltrate into the Coyote Groundwater Subbasin to undergo full advanced treatment in order to protect groundwater quality. This approach of using advanced treated recycled water balances the District policies to aggressively protect the groundwater basin from contamination and to expand recycled water use in partnership with the community.

The WSE notes that an additional 6,000 afy in the Coyote Subbasin via new recharge facilities will safely increase groundwater withdrawal from the Subbasin to the maximum sustainable long-term amount, which is 13,000 afy. This is consistent with District staff analyses and consistent with District policy to sustain and protect groundwater resources.

We agree with the City that our agencies should continue to work together to identify and develop aggressive water conservation measures and policies that will need to be included in the Coyote Valley detailed development design and construction. This is consistent with our policy that water conservation is implemented to the maximum extent that is practical.

In the event that all of the projected groundwater recharge requirements in Coyote Valley cannot be met using recycled water due to regulatory limits on volume and residence time in the groundwater subbasin or it is not feasible to do so, sufficient alternatives for water supply are documented in the WSE. These alternatives include groundwater recharge reuse (using advanced treated recycled water for groundwater recharge) in the Santa Clara Valley Subbasin in exchange for using Santa Clara Valley Subbasin supplies in Coyote Valley. The City's finding

Mr. Les White
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that there is enough evidence to support a finding that sufficient water supplies will be available to support CVSP build-out concurrent with 2030 County-wide demand is consistent with District policy for long-term water supply reliability.

The District will participate in selecting preferred alternatives for CVSP water supply so that the selection does not have a deleterious effect on water supply reliability in other parts of the county and is consistent with long-term planning goals. As the groundwater management agency and a water wholesaler, the district will operate and maintain any recharge facilities, diversion, turnouts, and pipelines to recharge facilities. For treated water, the District will have the responsibility for any pipelines up to retailer turnouts. Additionally, the District is the recycled water wholesaler for the CVSP area, and so might also deliver recycled water to CVSP from the South Bay Water Recycling Program and/or from South County Regional Wastewater Authority, if that water is used as a supply source.

I believe our staffs' close and collaborative working relationship has been and will continue to be a benefit to both our agencies. Water resources issues are a critical component of development planning. Working together enables the City to develop land use plans that are consistent with District water resource management policies and enables the District to develop water resource plans that are consistent with City land use policies.

Please do not hesitate to contact me or Assistant Operating Officer Melanie Richardson at (408) 265-2600 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Stanley M. Williams".

Stanley M. Williams
Chief Executive Officer